INDIA RUBBER WORLD AND ELECTRICAL TRADES REVIEW

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JNO. R. DUNLAP. H. C. PEARSON.

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THE demand from new subscribers for back numbers of the INDIA RUBBER WORLD having exhausted our reserves for that purpose, the publishers will be glad to pay 20 cents each for copies of the following numbers, viz.: December, 1889, and February, 1890.

What if Rubber Drops?

ALMOST all rubber goods have undergone of late a considerable advance in price. They are not up to what they should be, considering the high price of crude materials, but the trade is in a much more satisfactory condition than it was a few months ago. Now, suppose the price of crude rubber suddenly drops, what is to be the action of the rubber manufacturers? This is a question that means a great deal. If the present prices are continued, no matter if there is a decline in the price of rubber, the chances are that there will be a reasonable profit in the business, and there are good grounds for believing that there will be no lessening in the amount of sales. All the sales agents and most of the commercial travellers report that the recent advances were met by the buyers in a most cheerful spirit. It was something that they expected, something that they thought should be done, and that they were perfectly ready for. The buyer of rubber goods is not a bit afraid of stiff prices if they are made all along the line, but the fact that some one else may be buying cheaper than he is, is what disturbs his confidence and makes him fight for a lower price more than anything else.

If the fair price that is now upon rubber goods be kept there, it will mean that there is money in the business and it will provoke few protests from the buyers. A significant fact that has much to do with this subject is that the June sales of mechanical rubber goods were far larger this year than they were last, in spite of the decided difference in prices. We take it that every rubber manufacturer in this country is in the business to make money. The late rise in crude material may be to many of them a godsend, in that it has permitted them to raise their prices. Now, there should be such a decided feeling among the trade, with their present close relations, that he who first begins to hammer prices should be considered as violating a solemn agreement, and it should be made by the rest to be so singularly to his disadvantage that he would be glad to restore prices to the same level with the other manufacturers.

We do not wish to be understood in this to be advocating a trust, or anything of the kind, but we do wish most distinctly to assert that we believe in the next year mills that have been losing money because of low prices can make money. We believe that the prices now charged will be fair prices for goods, provided the reasonable drop in rubber comes, and we further believe that those mills which insist on receiving fair prices for good goods will be more prosperous than the concerns which make a business of cutting prices, of taking orders in which there is no money, of looking for a great volume of business rather than a profitable business.

The Moral Effect of Combinations.

IT may be true in some instances that "distance lends enchantment to the view," but in the case of manufacturing concerns viewing each other from a distance, it is rather apt to prove to the contrary. In business it is a very natural thing to suspect a stranger, or at least to extend him scant courtesy until he has shown his credentials. That there has been in the past more or less suspicion existing between the heads of many of our large factories, no one can dispute ; nor can any intelligent student of the signs of the times fail to observe that associations of business men—in other words, combinations—are the most effective means of doing away with this suspicious attitude. Only as late as a week ago we saw, as a result of a recent combination among the rubber men, two wealthy manufacturers walking arm in arm, talking pleasantly, who for years have been practically at swords' points.

The fact is, when one comes to meet a man who is a rival in business at the dinner table, and finds him congenial and gentlemanly, when perhaps some little difference of opinion has been satisfactorily explained by some casual remark, trade jealousies seem to have no place. The fact that our rival is human, and is perhaps exactly as honorable as we may be, comes with such overwhelming force that the little differences disappear of themselves.

There should be the utmost cordiality between the great manufacturers in the rubber industry, no wise man will dispute. The business to-day is one that is done in about the same manner in all of the various mills; that is to say, while there are tricks of manipulation and secrets for special goods, the general rubber business is to-day a business that is thoroughly comprehended in all factories. On

all great questions, and on many small questions, what is a benefit to one factory will be a benefit to all; and what is a damage to all, will be a damage to any individual one of the concerns. Concerted action, therefore, for the strengthening and upbuilding of this industry is what is called for. No truly successful business man can afford to be a selfish man. While conservatism in business is an excellent thing, it never should take the form of isolation. While it is improbable that all of the rubber companies will ever be gathered together under the protecting wings of a trust, it is probable that a closer union among them will be formed, and it is a thing to be hoped for. There are special lines of goods on which all manufacturers have lost money; there are orders taken in every mill of the country to-day which are taken under protest because there is nothing in them. There is absolutely no reason for this. No business man can afford to do business simply for the sake of its volume. Commercial houses are at work to make money, it is right that they should receive the reward for their capital invested, for their progressiveness, and for the skill with which they reach their ends. It is therefore most earnestly to be hoped that the combinations which are being urged will embrace all of the rubber manufacturers in this country, and that their business will be administered in so broad and unselfish a spirit that all the humblest, as well as the wealthiest, may prafit thereby.

The Indian Must Go.

THE INDIA RUBBER WORLD has just received information which has determined it upon an immediate and aggressive Indian policy. The fossil hard rubber which has been shown through New York somewhat, and upon which many experts have passed their wise opinions, and in which, to tell the truth, we have been deeply interested, has been discovered at last to have come from the Indian Territory. There is lots of it there, but the Government, in protecting its children of the coppery complexion, will not allow it to be mined. We protest against this most emphatically, not because we are sure that it will be of any special commercial advantage, but we do want to try some more experiments with it. For instance, it struck us that even if it could not be melted or pressed into shape as it is, that it could, by some sort of grinding that should make a mass of tiny shavings of it, be then compounded with fresh rubber and used in a great deal of hard-rubber work. It certainly would make a first-class insulator, and there is no reason to suppose that in much of the sheet hard rubber, or other goods of that kind, that it could not be used.

THROUGH an unfortunate oversight, we were led to state in our last issue, that the loss to the Hodgman Rubber Co., by their recent fire at Mount Vernon, N. Y., was $40,000, with insurance of but $7,000. The facts in the case are that the total loss was much smaller, and that it was wholly covered by insurance; beyond this, a new building was secured with such promptness that only a few days were lost, and owing to the ample stock that the company carries, not an order suffered one day's delay. We regret the inaccuracy of statement, but it affords us a great deal of pleasure to announce that the error was on the right side. It is much better that the statement of loss should have been made and not realized, than that it should have been realized and not stated. We are therefore disposed to congratulate the Hodgman Company upon their good fortune, which is clearly the result of their foresight in preparing for such an emergency.

Letters to the Editor.

BOSTON, MASS., July 8, 1890.

H. C. PEARSON, EDITOR: Replying to your inquiry as to who the wearers of leather coats, trousers, vests and caps are, we would say that they are more and more going into every walk in life. Professional men, sportsmen, engineers, car drivers, teamsters, firemen, switchmen, brakemen, and all railroad men are buyers and wearers of them. The advance that has been made in the finish of the goods during the last few years is, in our judgment, the reason for their ever-increasing popularity. Very truly yours, J. A. TUCKER & Co.

BOSTON, June 30, 1890.

H. C. PEARSON, EDITOR: I hand you a cut of the old Slater Mill in Pawtucket, R.I. I am sure this is the first cotton mill in America, built in 1793. Now I am looking for the first rubber factory built in America. I have made inquiries relating to it, and have found so many *firsts* that I am at a loss as to which is entitled to that honor. I am advised by Wheeler

Cable, Esq., President of the Cable Rubber Co., of this city, to apply to you for the information I want, Can you assist me?

B. F. TAFT,
Secretary and Treasurer Rubber Manufacturers' Mutual Insurance Company.

[We also know of several first mills, and therefore appeal to the rubber manufacturers for a settlement of this interesting question.—EDITOR.]

ST. JOHN, N. B., May 31, 1890.

EDITOR INDIA RUBBER WORLD: Referring to your recent article on "Rubber Literature," we would name "A Practical Treatise on Caoutchouc and Gutta Percha," from the German of Raimund Hoffer, printed by Henry Carey Baird & Co., of Philadelphia. As a technical work, in small compass, it is about the best we have seen. We would, however, notwithstanding your editorial, like to see an "India Rubber Bibliography." To this end all who know of works on India rubber can be asked to send you their titles.

ESTEY, ALLWOOD & Co.

New Goods in the Market.

TO MANUFACTURERS AND PATENTEES:

It is our aim to embody in this department descriptions and illustrations of all the latest novelties introduced in the market, to the end that jobbers, retailers and buyers of rubber generally may look here for information as to everything new that each month or season brings forth. Manufacturers and patentees are, therefore, most cordially invited to co-operate with us in making the department as complete and attractive as possible—the distinct understanding being that no charge whatsoever, either direct or indirect, will be made for these publications. Our reward will come through giving our readers valuable information; and that will be reward enough if manufacturers but give the information freely and in all cases at the earliest practicable moment.

In forwarding descriptions of new goods, be careful to write on one side of the paper only; be brief, but always write enough to give the buyer a clear idea of the article you offer; give your full address, plainly written; and in all cases send a small illustration or wood cut if you have one.

ONE disadvantage about the ordinary rubber is that it protects parts of the shoe that need no protection, and so draws the foot. It was to overcome this that the foothold was designed. The ordinary foothold, however, has a serious lack in it in that the act of stepping loosens it around the instep and allows the water to run in between the sole of the rubber and the sole of the shoe, manny times wetting the foot. It is to overcome this that Bailey's Water-tight Footholds have been produced, an illustration of which accompanies this notice. The plan for shutting out the water is an exceedingly simple one, and as effective as it is simple. A piece of flexible pure gum rubber tubing is vulcanized right across the shank of the rubber, and hugs so close to the shank of the boot that no water, snow, or mud can by any possibility pass in. Although so new that this is almost the first printed notice that it has received, the shoe has begun to sell wonderfully, and without doubt will find favor in the eyes of all those who, in putting on rubbers, wish dry feet, and yet do not wish to be compelled to wear a heavy article. The Water-tight Footholds are made for both ladies and gentlemen, and are now on sale by all dealers in rubber goods throughout the country. Manufactured by C. J. Bailey & Co., Boylston Building, Boylston Street, Boston, Mass.

Pat. No. 301,311, others pending.

—It is probable that jackets of leather have been worn for as many years as those of any other material, but it is a new departure for those who sell rubber clothing to carry a stock of them. It is found, however, that in the rubber stores, and in the stores of those who carry a general line of clothing, that the leather jacket has become an especially good seller. We illustrate here one made by J. A. Tucker & Co., No. 150a High Street, Boston. The cut does not do justice to the garment, except in its general outline. One should see the tiny leather jacket, that, attached to Mr. Tucker's circular, is sent around to all the leading buyers. It attracted a good deal of favorable comment at the time, and even now many of them may be seen in conspicuous places in the offices of those who deal in these goods.

—Many a horse is practically spoiled by having tender feet, corns, or sore cords. This is no doubt due largely to city pavements and to poor shoeing. In the Reidy Patent Horseshoe Cushion is something that does away with concussion, with tenderfootedness and with corns. The cut shows how it is applied. Lest the rubber of which the cushion is made heat the hoof, a heavy layer of duck interposes which has the desired effect. The verdict of a gentleman so well known as the founder of the Boston Rubber Shoe Company should have some weight, hence we print the following letter: "One of my horses was for a long time lame with low weak heels, and I could find nothing to benefit him until about six months ago, when he was shod with your Patent Cushions, and since that time he has travelled all right. I can, with pleasure, recommend them for horses troubled as mine was.

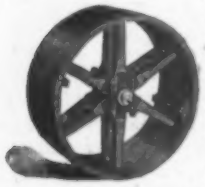
"E. S. CONVERSE."

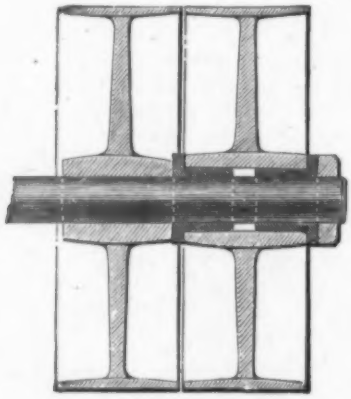
—The Ideal Combination Water Bottle and Fountain Syringe, illustrated in the accompanying cut, serves a double purpose, and is, in its construction, perhaps the least complicated of its kind on the market. The stopper is a decided novelty of workmanship and construction; you need not remove it at any time. By turning it a few times you will notice some slots in its side through which you can fill and empty the bottle. Therefore you cannot lose or displace the stopper. On top it is provided with a nozzle in which there is a small screw which serves to open the nozzle just as wanted, either as fountain or water bottle. The screw cannot be lost, as it is fastened to the handle of the stopper, which moves on hinges and is adjustable. Manufactured by the Ideal Rubber Co., Nos. 1–13 Adams Street, Brooklyn, N. Y.

—"Biddy" has made many a man anxious at his breakfast-table by proclaiming the fact that, "Shure, the sink spout has stopped up." The plumber usually is the only beneficiary of the catastrophe, though all that was needed was a little application of familiar science. For some time the Hodgman Rubber Co., of New York, have had a simple device, consisting of a rubber cup attached to a handle. By filling the vessel to the depth of three or four inches, and then placing the bowl of the cup directly over the vent, and forcing down the handle quickly three or four times, the pipe will be cleared of ordinary obstructions. The motion of the water in the pipe is, under this pressure, precisely like the shaking of it in a bottle. One dollar pays for

the largest size of this device, and the clearing of obstructions with it is a pastime, one man having been known to slily clog up the kitchen sink pipe several nights in succession, so as to have the fun of clearing it out in the morning.

—Wooden pulleys are coming more and more into general use and many predict that they will yet supplant the iron pulleys in almost every case. They are cheaper and much lighter than iron, thus saving considerable power when many are used. On this account they are also more easily placed in position. The advantages claimed for the Menasha Hardwood Split Pulleys over other wood pulleys are that the rims are of hardwood, well seasoned and bent—not put together from small pieces. There is no glue used in the construction of these pulleys, thus obviating the possibility of their coming apart from the action of heat or moisture. In addition to the joints being dove-tailed, they are firmly clamped together. The spokes are placed so as to cut the air and not fan it. They are securely fastened by being driven through the rim in white lead. The hubs are of iron, which prevents them from shrinking or expanding. The bushings are paper, made from the best friction board. It is a well-known fact that paper makes a better friction on iron than wood. This is simply a demonstration of the fact of a positive and negative producing the best results. In this case the iron is the pos'tive and the paper bushing the negative. These pulleys are clamped to the shaft by iron bolts, which are so placed as to be easily gotten at when the pulleys are in position. The manufacturers use metaline as the bushing for their loose pulleys, and therefore no lubricant is required. In fact, the use of oil is prohibited and the shaft should be carefully cleansed before the pulleys are put in position. Metaline is not injured by heat of less than 250° Fahr. Pulleys bushed with metaline will run from three to five years without requiring any attention. No doubt these new pulleys will prove of interest to all manufacturers who use machinery of any kind, and who appreciate a good thing when they see it. The largest of the cuts herewith represents a loose and tight pulley on the shaft. The New York agents are A. Van Vechten & Co., No. 165 Greenwich Street, and they keep a large stock from which orders can be filled promptly.





A steam packing which is particularly valuable is that known as the Rainbow. It is adapted especially for very high pressure, and is not affected by any degree of steam heat. It will not harden under any degree of heat or blow out under the highest pressure, and will make an air, steam, hot or cold water joint equally well. It conforms to rough and uneven surfaces, making a perfectly tight joint, retaining its elasticity, and will not crack or harden under any conditions. Made in sheets and gaskets 1-32, 1-16, 3-32, 1-8, 3-16 and 1-4 in. Full rolls weigh about 200 pounds. Manufactured by the Peerless Rubber Manufacturing Co., New York.

RAINBOW

[Trade Mark.]

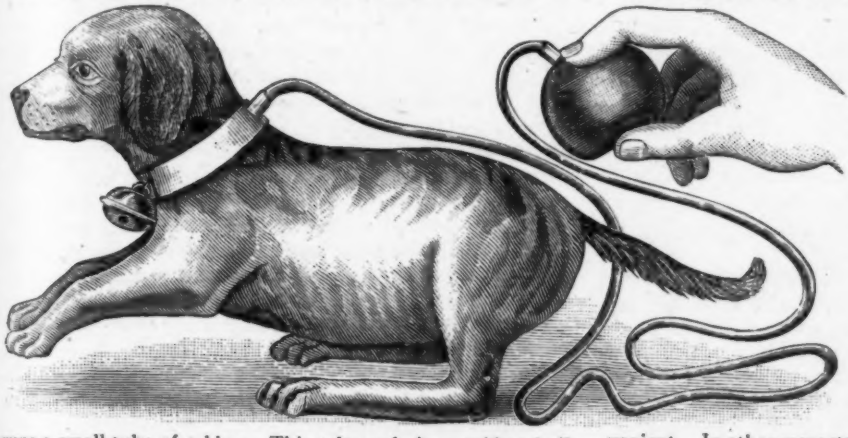
—We illustrate herewith the Tyrian Breast Pump. It is of the regular pattern that has been made by the Tyer Rubber Co. for a number of years, except for the red rubber shield which goes over the mouth of the glass tube. This is made of a very soft, velvet-like compound, and feels much more agreeable than does the glass surface, and the suction is also much stronger. During the last year this has been pushed quite extensively, and is now almost universally adopted on goods of this kind. Manufactured by the Tyer Rubber Co., No. 50 Bromfield Street, Boston, Mass.

—The daintiest and prettiest piece of rubber work in the market to-day is a sheet of pure gum as soft as velvet, and full of the clinging odor of a sweet perfume; daintily stitched with white floss to a covering of glistening silk, stamped with a graceful swan for a trade mark:—the whole being the new Swan brand of pure gum silk dress shields of the Columbia Rubber Co. of Boston.

—A dauber in almost any shoe blacking kit is liable in a short time to become so clogged with blacking as to be worse than useless. A device that has proved exceedingly popular, not only with bootblacks, but for all blacking kits, amateur or "professional," is Bailey's Rubber Dauber, which distributes the blacking without any spattering or clogging, and has proved itself a perfect article in this line. Made of pure Para rubber, it will last for years and do its work more satisfactorily than any other. The price is 25 cents, at which it is sent by mail. Manufactured by C. J. Bailey & Co., Boylston Building, Boylston Street, Boston, Mass.

—The Hannaford Ventilated Boot, here illustrated, although not new, is in itself so unique a production that we are quite willing to show its valuable features. The elastic middle sole is constructed with compressible air cells which are connected with a tube extending to the top of the leg. The weight of the body at each step forces the air from under the foot out of the tube, and upon the weight being removed, as in the act of walking, the atmospheric pressure or suction, supplies fresh air—that is, at each step the foul air is expelled and fresh air is admitted. The foot rests on a leather sole, and does not come in contact with the rubber, therefore the foot is not drawn as it is in rubber boots. Manufactured by the Hannaford Ventilated Boot Co., No. 79 Milk Street, Boston, Mass.

—A curious toy, and one that is having a very large sale, is the "jumping dog." Although new, almost every city dweller has seen it, so that a brief description is all that is necessary. The dog is a tiny, woolly creature, from the collar of which runs a small tube of rubber. This tube ends in a rubber bulb. The owner of the toy, holding the bulb in the hand, gives it a gentle squeeze, and a jet of air passing through the tube causes the dog to give a queer little jump. For sale by Ives & Blakeslee, 294 Broadway, N. Y.



—We have spoken before of the Perfection Sprinkler, and now take pleasure in reproducing cuts of it. One particular advantage that it has over other sprinklers is that it is possible with it to spray the under portion on leaves, which is the place where the parasites always begin their work of destruction. It has also a re-filling valve that is simplicity in itself and allows the bulb to be filled without the least trouble. The whole metal head may be taken off and the bulb cleaned with the greatest ease, while the valve, if worn, can be easily replaced. The sprinkler heads are all interchangeable from No. 1 to No. 3, or the sprinkler can be furnished with a straight neck instead of a curved. Manufactured by the Deverall Perfection Manufacturing Co., No. 1 Adams Street, Brooklyn. N. Y.

—Ladies are continually troubled by rubbers that will pull off in muddy weather. Many devices have been gotten up to overcome this fault. One of the latest and according to all accounts, one of the best, is the Adhesive Counter, which the striking cut that we here print well illustrates. This counter is lined with a strip of rubber so compounded that it will not easily allow the heel of the leather boot to slip out. It is a neat and sensible device, and rapidly growing in popularity. Manufactured by the Colchester Rubber Co., Colchester, Conn.

—Mr. J. R. Hargin of Elizabeth, N. J., is the patentee of an air mattrass which promise of wide popularity and use in that line of goods. It has been patented in the United States, Canada, England, Austria, Hungary, France, Italy and Russia, and Mr. Hargin is now taking steps looking to the organization of a company to introduce the goods. The peculiar feature of the mattrass is that it fills with air automatically, which is of course a very strong point for seagoing purposes. The mattrasses are made sectional, with snap locks which make them exceedingly convenient. In other respects it seems also to be well gotten up and Mr. Hargin is enthusiastic and confident of great success with it.

—Until recently the type wheels on the stock tickers were made of heavy metal with steel type on the face. At that time the New York Stencil Works secured some patents which have revolutionized the manufacture of this little piece of mechanism. The body of the wheel is now made of aluminum, on the face of which is vulcanized rubber type. This form has sweeping advantages. The weight has been very much reduced. As the wheels are started by the electric current, the inertia to overcome is not so great, and the momentum is much less, when it is requisite to stop them. This, when a great number of movements are made, is an advantage of considerable moment. The old style of inking required daily application, but it is found that rubber needs only monthly renewals. Then the cost has been reduced, $10 was the price of the old, now three dollars covers the cost of the two wheels. All tickers are being rapidly replaced with rubber type wheels, and panicky South America at the present time is reeling off the price of gold on 300 of these new discs. These goods are manufactured by the New York Stencil Works.

Recent Rubber Patents.

No. 428,198.—A rubber striping device, by Nathaniel C. Videto, Superintendent of the Gossamer Rubber Co., South Framingham, Mass. The device consists of a horizontal trough, having through its bottom one or more longitudnal slots, provided with shallow channels each of a breadth less than the length of the slot and leading rearwardly from it, the opening being in the direction of the movement of the rubber fabric.

No. 428,218.—Horse Collar; Charles K. Marshall, Vicksburg, Miss. This is in the line of many experiments that have been tried in moulding horse collars. The claim here is for a vulcanized wood fibre pulp collar, having a continuous metal support imbedded in it. The fibrous portion of the collar is to be water-proof, hard and solid throughout the body of the collar, and of a nature which renders it free from liability to change its form under strains, or the influences of solar heat, or moisture. We have seen horse collars moulded in this shape from a mixture of wood pulp and India rubber, and, except for the cost, are inclined to think that it would have been a success had it been a little further developed.

No. 428,242.—Inking Pad and Holder; Johann E. Bohac, Vienna, Austria-Hungary. An inking pad consisting of a non-absorbent elastic material, such as vulcanized rubber, and a covering of fibrous material, having a horizontal rim or flange engaging the fibrous material to the upper face of said pad.

No. 428,324.—A pencil eraser, patented by Mary A. L. Thomas, Springfield, Tenn., consisting of a thimble to be worn on the third finger. At the end of the thimble is a rubber eraser. The thimble is attached by a tiny chain to the end of the pencil used in writing, and is presumably a very handy attachment.

No. 428,410.—Mailing Case for Bottles; Edward R. Phillips, Cambridge, Mass. It consists of a liquid tight mailing case having an inner rubber bottom, a corrugated top surface; provided also with elastic washers at intervals along the walls inside of the case, which clasp the bottle, and in combination with the elastic cover, hold it tightly.

No. 428,467.—Crutch; John Dobney, Toronto, Ontario, Canada. The claim for this is a rod running through the centre of the lower end of the crutch rod, and arranged so that it can be turned to the right or left, the crutch having a rubber block held at its end in combination with a spring, the idea being not only to give considerable spring to the crutch itself, but to allow of the pointed rod being turned down through the block of rubber and giving a better hold in walking.

No. 428,534.—Armpit Shield; Georgia M. Sigsbee, Boston, Mass. This is a dress shield consisting of a sleeve portion and a flap, the two being lined, or partially lined with non-absorbent tissue, which may be rubber or composition. The sleeve portion being wide at the bottom and tapering to points at the ends and binding strips extending around the edges of the shield and one of the strips, holding the ends of the sleeve portion together.

Nos. 428,544 and 428,545 are patents taken out by Emery Andrews, assignor to the Leatheroid Manufacturing Co. The first is a composition for use in mechanical goods, composed of finely ground leatheroid and rubber in varying proportions, from 40 to 90 per cent. of leatheroid to 60 to 10 per cent. of rubber, and the second is an insulating compound composed of a solid inner core of some strong insulating material, as leatheroid, and an enclosing covering composed of a mixture of ground leatheroid and rubber, finely intermingled.

No. 428,592.—Inspirator; Luke Chapman, Collinsville, Conn. This is of interest to the rubber people as illustrating a further use for flexible rubber tubing. It is merely a hood, fitting over the nostrils connected with a tube, which in turn connects with a ventilator. It is for use among workmen where their work is such that they are apt to inhale dust or injurious odors.

No. 428,611, by George H. Hurd, Cleveland, is something in the same line. The rubber part of it is where the free edges of the helmet are made of rubber, and are adapted to tightly clasp the head, and also where the tubing from the inspirator leads around from the front of the mask to the condensing air-chamber.

No. 428,692 is a hot water bottle, patented by Andrew McTernen, Andover, Mass. The claim for this is of a hot water bottle having a flaring mouth. The combination of an internally screw-threaded socket, flaring at its upper end with an externally screw-threaded stopple, consisting of a handle, head, neck, screw-threaded portion and downwardly projecting ball end at the lower terminus, such ball end being in vertical section curved or arc-shaped, whereby the stopple is guided as it drops into position, so that its screw-thread may quickly engage with the screw-thread of the socket. Above the screw-thread on the stopple is a washer, which engages in the flared portion of the neck of the bottle.

No. 428,745.—Electric Cable; Willard L. Candee, assignor to the Okonite Co., New York. This consists of an electric cable for a conductor or group of conductors individually insulated, except at the ends, by a braid or wrapping of fibrous material and an impermeable sheath or covering, the terminals of the conductors being covered by or imbedded in a water-proof insulating compound, which fills and closes the ends of the sheath or covering.

No. 428,752.—Safety attachment for Pencils; John C. Gores, Eau Claire, Wis. This is simply a cylindrical tip to be put on the blunt end of a pencil, and is provided with a series of annular flanges, which are intended to keep it from slipping out of the pocket easily.

No. 428,767.—Bridle Bit; George Brockington, Brooklyn, N. Y. This is a bridle bit consisting of a core made up of a series of ball sections and a series of socket sections, the the covering of the core to be of soft, flexible material, such as vulcanized India rubber.

No. 429,104.—Underground Conduit for Electric Wires; Erich L. Witthaus, Baltimore, Md. The claim in this is of a conduit made up of a casing of wood saturated in lubricating oil, a filling of sawdust and resin within said casing and insulation around the wire within the filling.

No. 429,304.—Electric Conductor; Henry B. Cobb, Wilmington, Del. It consists of a wire enclosed in an insulating substance, the whole being enclosed in a tube of vulcanized rubber with a soft insulating material, such as wax, between the rubber and the hard insulating substance.

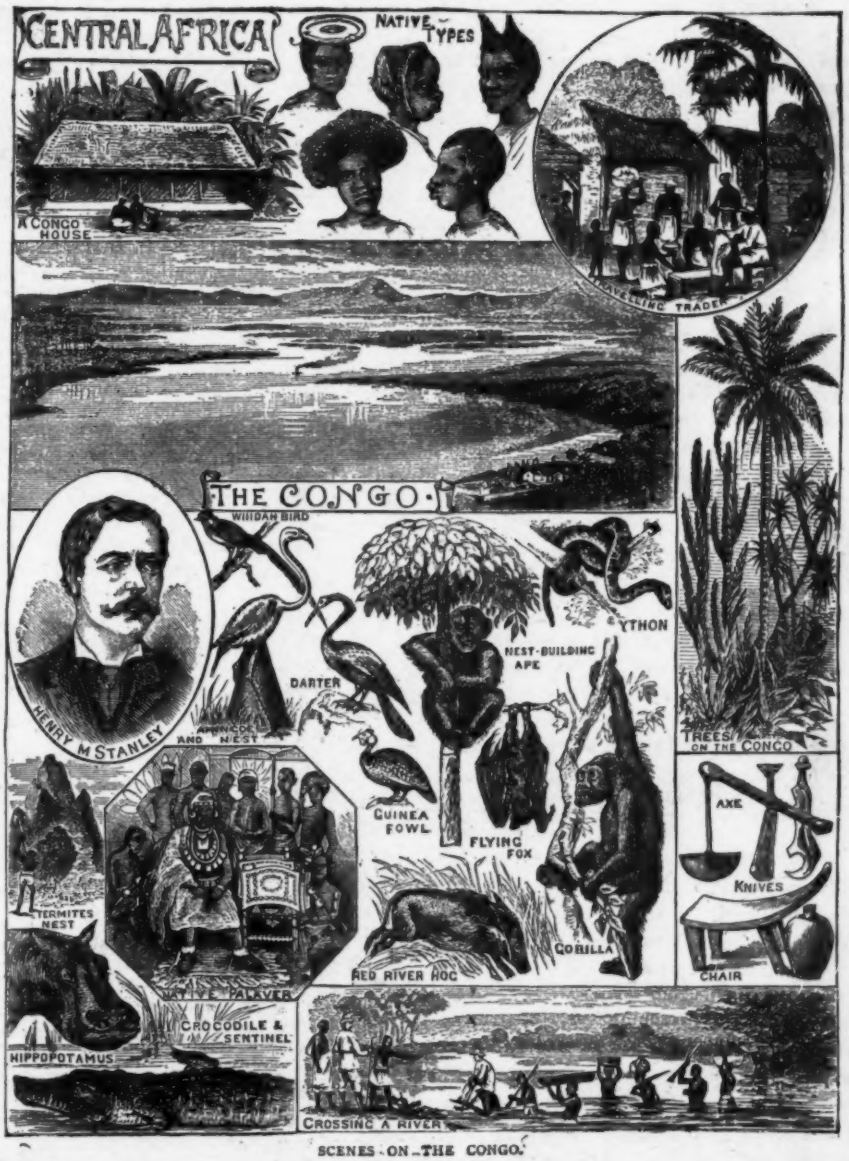
No. 429,579.—Bottle Stopper; Garritt H. Oliver and Edward L. Brooks, Chicago, Ill. This is a self-adjusting bottle stopper made up of a bulb of rubber provided with stiffening rings around its circumference and a guide core, with a longitudinal moving plunger, running through the centre of the stiffening rings. The pressing down of the plunger causes the bulb to swell, and thus fills the neck of the bottle.

Stanley's Great Rubber Reservoir.

EVERYBODY remembers how Stanley, when he last emerged from the wilds of Central Africa, brought back word of his discovery that the Aruwhimi forest, in the Congo Free State, was enormously richer in everything, especially in rubber trees, than the Amazon forests. This section of Africa, he declared, would yet become the rubber reservoir of the world. No other tidings brought from this mysterious region possessed so much interest to the commercial and industrial world, for the demand for rubber as one of the necessaries of life has increased at such a rate as to render the question of supply one of deep concern. The appearance of Mr. Stanley's book on his late expedition has been awaited, therefore, with great interest, the explorer on his way home having intimated to a newspaper interviewer that he had intended to reveal the facts concerning this new rubber reservoir only in his book, conveying the impression that it was only the importunity of the correspondent for "news" that tempted him to allow this fact to leak out in advance of publishing his book. The much-advertised work has at length appeared, under the title "In Darkest Africa," in two handsome volumes bearing the imprint of the Scribners, of New York. It is not intended here to discuss the book as a whole, but merely to quote the writer as he winds up a long description of "The Great Forest*" through which the river Aruwhimi flows:

"Respecting the productions of the forest I have written at such length in 'The Congo and the Founding of Its Free State' that it is unnecessary to add anything more here. I would only say that when the Congo Railway has been constructed, the products of the great forest will not be the least valuable of the exports of the Congo Independent State. The natives, beginning at Yambuya, will easily be induced to collect the rubber, and when one sensible European has succeeded in teaching them what the countless vines, creepers and tendrils of their forest can produce, it will not be long before other competitors will invade the silent river, and invoke the aid of other tribes to follow the example of the Baburu."

And this is the rubber reservoir of the future! After travelling, as he says, 1670 miles through the great forest, consuming a great length of time in the study, all that the great explorer can do for the expectant rubber trade is to direct it to a work he published years ago, in which the importance of a railway around the cataracts in the river Congo is dwelt upon at much length. That suggestion has borne no other fruit, so far as the world knows, than the promise of $50,000 by Mr. Collis P. Huntington to the stock of such a railway if one shall be projected. Mr. Huntington has, it is true, permitted himself to be interviewed in a newspaper in the form of the suggestion of the



SCENES ON THE CONGO.

*The "great forest" is in the very heart of the African continent. Its centre rests upon the equator, midway between the eastern and western coasts, and the Aruwhimi and Congo rivers, converging near its western limit and flowing thence together into the Atlantic, may be said to form its northern and southern boundaries. The forest has been reached from the outer world by means of travel up the Congo River from the Atlantic coast, and by expeditions from Zanzibar, on the Indian Ocean, which bounds the continent on the East. With these general hints the forest may be approximately located upon any good map of Africa.

great fortune to be made by a young man with $10,000 capital who will go to the Congo region, buy rubber from the natives at two cents a pound and sell it for half a dollar. But the great railway magnate has not yet put any cash into either railway building or rubber gathering in the Congo country.

While Mr. Stanley has contributed nothing new to the knowledge of the African rubber supply, no doubt very much rubber exists there. The Aruwhimi forest he estimates at 321,000 square miles in extent, having an average width of 517 miles and an extreme length, north and south, of 621 miles. This is exclusive of the forest areas separated or penetrated into by reaches of grass-land, or of the broad belts of timber which fill the lower levels of the numerous great rivers skirting the central forest. "Imagine," says the explorer, "the whole of France and the Iberian peninsula closely packed with trees varying from 20 to 180 feet high, whose crowns of foliage interlace and prevent any view of sky and sun, and each tree from a few inches to four feet in diameter. Then from tree to tree run cables from two inches to fifteen inches in diameter, up and down in loops and festoons and W's and badly-formed M's; fold them round the trees in great tight coils, until they have run up the entire height, like endless anacondas; let them flower and leaf luxuriantly, and mix up above with the foliage of the trees to hide the sun; then from the highest branches let fall the ends of the cables, reaching near to the ground by hundreds with fringed extremities. * * * Now cover tree, branch, twig and creeper with a thick moss like a green fur." Much more is written in this vein to give an idea of the density of the forest. Some of the trees named are the African teak, African mahogany, lignum vitæ and the yellow wood (which is infinitely harder than oak) all of which are valuable in commerce. Though not so stated by Mr. Stanley, it is to be presumed that the rubber vine (*Landolphia*) figures prominently among the masses of creepers which pervade the forest. Speaking of fruits, he says: "An India rubber vine produced a pear-shaped fruit which, though of a delicious odor, was the cause of much nausea." Other writers on Central Africa describe a rubber-producing vine as abundant.

To take Stanley's advice and refer to his earlier books, one may read, of the Lower Congo, that near Bólóbó it "was enormously wide, from five to eight channels separated one from another by as many lines of islets (some miles in length) on which the *Landolphia florida* (rubber plant) flourished." Of its value, he added, the natives knew nothing. The extent of rubber on the Upper Congo—another portion of the same stream—is indicated by this extract, also from the former book:

"If every warrior on the immediate banks of the Congo and its navigable affluents, aggregating a length of 10,800 miles, within easy reach of traders above Leopoldville, were to pick about a third of a pound of rubber each day throughout the year, or to melt two-thirds of a pound weight of palm oil and convey it to the traders for sale, £5,000,000 worth of vegetable produce could be obtained without exhaustion of the wild fresh productions."

It is upon the possibility of such extensive production that Stanley based his suggestion of a Congo railway to counteract the natural obstacles to navigation in that river. "As a mere speculation," he wrote on one page, "there is nothing in the whole wide world offering so remunerative an investment of capital as this small railway." Then recurring to the productions of this section he says:

"The next [to oil palm] most valuable product of the forest, as yet untouched in this region, is the gum of the *Landolphia florida*. There are three kinds of plants producing rubber, but that which exudes from *Euphorbia* is not so elastic in quality, although it may have its uses. On the islands of the Congo, which in the aggregate cover an area of 3000 square miles, with 8000 square miles of the banks of the main river, I estimate that enough rubber could be collected in one year to pay for a Congo railway."

So much for Mr. Stanley. Joseph Thomson, F. R. G. S., who commanded the English Royal Geographical Society's East Central African Expedition (1878–80) wrote in his report concerning Uzaramo, a province on the eastern coast, whose shipping port is Zanzibar:

"The rubber exported from Uzaramo is derived from two species of *Landolphia*, called by the natives *mpilé* and *mbungo*, of which the first is thought better. They occur as tangled, woody creepers hanging from tree to tree in the richer parts of the forests. The rubber is extracted by cutting the bark, when the juice exudes like milk, thickening during the process. Then it is gradually taken off and wound round into the shape of a ball two inches in diameter. The rubber from Uzaramo is considered as good as any to be got either from any part of Africa or from America, and would command as good a price but for the abominable practice of adulteration which the natives carry out. While making up a ball they introduce rubbish of all sorts—sand, hair, grass or moss—with, of course, a nice coating of good material outside. This depreciates the value considerably as the impurities are difficult to remove."

Mr. Thomson, after getting inland, found no rubber-producing plants all the way to Lake Tanganyika, which is a part of the eastern boundary of the Congo Free State, though he heard of it beyond that lake. A little south of the route taken by Mr. Thomson, and also east of the Congo Free State, is the British Consulate at Zomba, in Nyassaland, whence Consul A. G. S. Hawes reported to the Marquis of Salisbury in 1887:

"Rubber might, under proper treatment, have become a profitable export. It is now found in very small quantities, and indeed can scarcely be found worthy of mention. This is, indeed, undoubtedly owing to the destructive method the natives have of extracting the juice. At Mount Zomba the *Landolphia florida* species was found in plentiful quantites, but now the plant is almost exterminated. Rubber of this species sold in Africa last year for 1s 6d per pound. Cultivation of rubber by Europeans now appears to attract attention. A plant of *Ficus elasticus* is growing most successfully in a private garden, and the owner tells me he proposes to propagate extensively from it."

Some writer has described the *Landolphia* as a large climbing plant, four to six inches in diameter, two or three feet from the ground, where it divides into long, thin branches, which are sub-divided, climbing along the stems and branches of trees, to which they attach themselves by

means of spiral tendrils. He has seen natives gather the rubber milk by allowing it to run down upon their arms. When enough has run they work it down, removing it in the shape of rings.

To get back to the Congo country, which embraces the Aruwhimi forest, Henry Phillips, Jr., in a paper on the resources of that country read before the American Philosophical Society in 1888, said that caoutchouc was very abundant. The gum, he said, was brought by the natives in black or white balls, the former looking like Perigord truffles, but the latter were much more esteemed. It grew luxuriously and spontaneously. Just where the Congo rubber has been gathered remains to be learned. April 7, 1882, Stanley wrote in his journal on the Lower Congo: "Besides, we are pestered by people who wish to sell rubber," but he seems not to have asked where it came from. The Portugese explorers, H. Capello and R. Ivens, going from Benguella, on the Atlantic coast, north-eastwardly into the interior and toward the Congo State, met at Cassange a trading caravan from up the country. It was evident that the company had come "from distant points," and they bore ivory tusks and balls of India rubber.

The only American authority on rubber in the Congo country is an official report made to the Government at Washington by W. P. Tisdel, who as consular agent explored the Congo from its mouth as far as Stanley Pool a few years ago. In his belief there is not a richer country in the world than that between latitude 16° N. and 18° S., and extending from the Atlantic 100 miles inland. He included rubber as among the most valuable productions, and there appeared no limit to the quantity which might be gathered if the natives could be induced to work. Rubber is, however, only occasionally found in the market places along the Lower Congo. "It is a mistake," wrote Mr. Tisdel, "to suppose that all of the products which are reported to come from the Congo are grown there, or do actually come from there. Not one-tenth is harvested there." He means by this that the German and Portuguese traders refer as a matter of convenience to the Congo River all their traffic on the West coast of Africa, when much of it in reality does not come near that river. This does not mean, however, that there is no field along the Congo for traffic.

After all, the question of getting at the rubber of Africa is how to induce the natives to work. The climate is too perilous for Americans or Europeans to try to become acclimated. But the African will not exert himself to gather goods for export until he has been educated to want things we have to give in exchange. "When labor is required," says Dr. Henry Dummond, "and you have already paid your man a yard of calico and a string of beads, you have nothing in your possession to bribe him to another hand's turn. Nothing almost that you have would be the slightest use to him." Drummond once saw an African buried after an average career in the tropics, and his entire belongings were thrown into the grave. They were his pipe, a rough knife, a mud bowl and a bow and arrows. The people eat, sleep and talk. While it is a problem how these people shall be induced to work as a class, evidences are not wanting of their capacity for work. The railway between Lakes Nyassa and Tanganyika was graded by native African labor—by men who, a short time before, had never seen a white man or a spade or pickaxe or crowbar. Yet they learned to do the work well and without any compulsion, though Drummond relates that the wages were but a yard or two of calico per week for each man.

Choosing a Rubber Belt.

BY ROBERT GRIMSHAW.

THERE having been expressed a desire for a table which would show about how much rubber belt cross section there was needed to carry various horse powers at various speeds, the following table is offered as being convenient and practical for horse powers from 10 to 100 inclusive, and for belt speeds from 2000 to 2750 inclusive. The belt is supposed to be fastened with single leather lacing. Doubling the lacing adds about one-eighth to the driving power, other things being equal, and of course calls for only about eight-ninths as much cross-section for a given horse-power. If the joints were riveted there would be required only five-ninths as much belt for a given power.

BELT CROSS SECTIONS.

	Belt Speeds. Feet per minute.			
Horse Power.	2000	2250	2500	2750
10	.7	.62	.56	.51
15	1.0	.7	.8	.8
20	1.4	1.2	1.1	1.
25	1.7	1.6	1.4	1.3
30	2.1	1.9	1.7	1.5
35	2.4	2.2	2.	1.8
40	2.8	2.5	2.2	2.
45	3.1	2.8	2.5	2.3
50	3.5	3.1	2.8	2.5
55	3.8	3.4	3.1	2.8
60	4.2	3.7	3.4	3.1
65	4.5	4.	3.6	3.3
70	4.9	4.4	3.9	3.6
75	5.2	4.7	4.2	3.8
80	5.6	5.	4.5	4.1
85	6.	5.3	4.8	4.3
90	6.3	5.6	5.	4.6
95	6.6	5.9	5.3	4.8
100	7.	6.2	5.6	5.1

Thus, if we have to carry 50 horse-power and know that we are going to have belts running 2250 feet per minute, we can see at once that it will take 3.1 square inches of cross-section of rubber belt laced with single leather lacing and having 180 arc of contact upon a cast-iron pulley in good condition. We can make about this by having 12 inches of belt one-quarter inch thick or 15 inches of belt one-fifth inch thick; or if we know how wide we shall have to have our belt we can figure up very readily what thickness to get. Thus, if we cannot have more than a 10-inch belt we shall know very quickly that it will require 3.1 divided by 10, equal to 0.31 inch of belt thickness.

For other belt speeds than those given it will take in inverse proportion; thus, for 1125 feet of belt speed per minute it will require double the quantity; that is, 30 inches of one-fifth inch belt, or 24 inches of one-quarter inch, and so on.

Every-day Work in the Factory.

BY NICK R. AUGUR.

RUBBER manufacturers are so well acquainted with sulphur that they are apt to lose sight of the fact that there are many other methods of curing than the sulphur process. Possibly we are wrong in saying that they are so well acquainted with sulphur, as our observation leads us to see that they are getting less and less acquainted with it. In other words, in all lines of manufacture, except hard rubber, there is only about one-half as much sulphur used as there was ten years ago. If the reader will pardon this digression, we will come back to where we started—that there are many valuable vulcanizing agents that are to-day very little used, if they are ever thought of.

What brings this to mind particularly was the advent of a spectacled German professor in our laboratory one morning last winter, when we were trying some experiments with hyposulphides. In the course of the conversation that followed we discovered that the old gentleman was exceedingly well versed in the chemistry of India rubber, and particularly in the chemistry of adulterants and vulcanizing agents. He spoke of the trisulphide and pentasulphide of antimony, of lead sulphide, of the trisulphide of bismuth, and of many other articles which he named the sulpho metals. He claimed, for instance, for the pentasulphide of antimony—commonly called golden sulphuret of antimony—that it vulcanized rubber with a far greater degree of solidity than any other agent, and while he admitted that it was a difficult thing to handle properly, he was ready to back up his statements by telling exactly how it could be handled successfully.

In answer to a question as to why it was that these sulphides had not been more recognized by the rubber manufacturers, he said, and we thought with something of truth, that in this country the cost was first looked at, and in the second place, results; that few of the manufacturers were willing to take anything that was even a great deal better at a slightly advanced price. We knew this to be so in some cases, but not in all, and so remarked, but we doubt if we convinced our informant, for without replying, he merely sketched the processes in some of the larger mills on the Continent, with which he seemed to be perfectly familiar.

One of these methods struck us as being perhaps applicable to the rubber industry in this country, not only because of its cheapness, but because of the ease with which it could be used. This was what he called vulcanization by the use of either trisulphide or pentasulphide of potassium. His method, roughly, was to combine seventeen parts of carbonate of potassium with fifteen parts of sulphur. We were so much interested in the process that he described that we sent out and got what he wanted, and watched him carefully while he reduced the carbonate of potassium to a fine powder and dried it, and then, with a skill that showed he was thoroughly familiar with his business, he mixed the two and melted them together in a crucible. During the mixture there was a very strong effervescence, which he said was due to the escape of carbonic acid gas. When this part of the process was entirely finished, our friend scooped out the remainder and allowed it to harden. It was in a brownish, hard mass when cold, which he said was the pentasulphide of potassium and must be kept away from the air. Our first thought had been that this would be used by mechanical incorporation with the rubber, but instead of this he prepared from it a fluid with which to aid vulcanizing, by simply making a concentrated solution of it. This he put in a vessel, and bringing heat to it, boiled it, and then taking some of our thin strips of unvulcanized rubber, immersed them, and soon showed a complete vulcanization.

One thing that impressed us at the time was that the work, although apparently simply a surface vulcanization, was very smooth and free from any little surface vesicles that so often appear in the acid work, and there was no trouble at all in handling the liquid. There were no fumes from it that were in the least disagreeable, and the professor assured us that there was nothing about it that was in the least harmful. He said that the process was fully described in many German works, and that the French had also used it with considerable success. He did not claim for it that it was what one would use for anything but the very lightest goods; but he said that, properly manipulated, he did not believe that there was any acid cure, or vapor cure, that could in any way approach this pentasulphide of potassium.

Aside from sulphur at the present time, "Antimony" is the popular vulcanizing agent, and after talking about one pentasulphide it is natural that one should turn to another. No chemical that enters into rubber work has been more roundly abused than golden sulphuret of antimony. It has been the subject of endless experiments, and the improper use of it has brought trouble to many manufacturers. The making of this chemical has been undertaken by many different concerns, but, except in a few instances, with no conspicuous success. The reasons for failure are numerous, but the most prominent of all has been the presence of acid in the finished product. Aside from this, there is wide difference in the ores from which they had to work, most of them containing arsenic, iron, or two or three different metals in small quantities. The presence of these metals, as a rule, made the sulphuret a darker shade than the ideal golden color, and oftentimes during vulcanization the color would change still more to a darker brown. This was especially noticeable where iron was present. One manufacturer who denied that there was any iron in his sulphuret was convinced by having a magnet passed over a barrel of the sulphuret, when thousands of little particles sprang from the mass and clustered about the poles of the magnet. Where acid is present there is needed a more thorough washing and the most careful testing before it goes to any rubber manufacturers. There is no reason why every particle of acid should not be removed, nor is there any reason why every buyer of golden sulphuret should not be able to test his own sulphuret. A rough test is that of the blue litmus paper, and that is accurate enough for all practical purposes. The results of acid in

the sulphuret are well known. When first the goods are finished they appear all right, but in the course of a few months the acid will have so hardened the rubber that it is likely to crack, and will entirely lose its elasticity.

In compounding antimony and rubber considerable care should be taken lest the mass be burned on the mill. There is hardly any compound so sensitive to the effects of heat as is that which contains golden sulphuret of antimony. A batch of this stock on an overheated grinder can easily be half cured by the time it is thoroughly mixed, and will after that prove most untractable on the calender and unsatisfactory in the mould room. When it is taken off of the mill, unless it is to be used at once, it should be sheeted and allowed to cool, as the heat that the gum retains is quite detrimental to the mass. It is well, in using stock of this kind, to finish up all the spread as soon as possible. A roll of unvulcanized antimony stock, hanging in the rack of a cutting room for three or four months. will almost cure itself in a good many cases, and will so deteriorate with age that very much poorer results are obtained than would have been had it been used right after calendering.

Of course there are many different ways in which antimony is incorporated in rubber compounds. The cheaper way is to use it simply as a coloring matter, depending upon whiting for the body of the adulterant and sulphur as the vulcanizing agent. In this way a very little antimony can be made to go a great way, as it is a very strong coloring matter. For first-class work, however, enough of the antimony should be used to enable the combined sulphur in it to act as a vulcanizing agent, and the greatest care should be taken in curing that the goods are not one particle over-cured. Herein, as much as in anything, lies the success of those who make fine goods of this color. They are especially particular not to allow the goods to be quite cured, and the success that attends their efforts proves in this they are right.

Properly manufactured antimony should show no bloom of sulphur in the goods in which it is incorporated. At the same time, very little is manufactured so nicely that there is no free sulphur, and where there is free sulphur it is bound to show out.

For nice goods, nothing in the wide world so helps the final finish as a brief sun bath. It seems to put a soft, velvety finish upon the surface of the goods that can be obtained in no other way.

For tobacco pouches and goods of that kind, it is customary to potash them to get off what little bloom there may be, and then to rub them over with glycerine, which makes a very nice surface finish.

There is a complaint among manufacturers that different lots of antimony are of different shades. This is a trouble that is likely to continue, for it is well known that any colors which contain sulphur are almost impossible to match with any degree of accuracy. Different batches of golden sulphuret, therefore, no matter how carefully made, are bound to show a difference in color. The easiest way out of this for the manufacturer is to place orders for certain brands, and when he runs out of one shade, use up all the scrap in that line of goods before beginning on a fresh lot. These differences in color, however, are more apparent to the manufacturer than they are to the buyer of red rubber goods, and are really differences that amount to very little. If the manufacturer receives an antimony that is free from acid that has very little bloom to it, and that runs somewhere near the ideal golden shade, he should feel well content.

The Increasing Use of Asbestos.

THE mineral, asbestos, instead of being, as formerly, merely a curiosity for the cabinet of the mineralogist, has, in the last few years, been utilized in manufactures of value and importance. It is a peculiar form assumed by the minerals hornblende, augite and serpentine, yet the origin of its fibrous forms has not been explained, so far, other than that it is due to some process of decomposition. Mention is made, in the history of the sixteenth and seventeenth centuries, of cloth and handkerchiefs made of the material, but until a recent period it had no commercial importance or utilization, and beyond its well-known indestructibility by any degree of heat, none realized its other valuable qualities, or its adaptability for uses peculiarly its own. Asbestos is found almost everywhere in greater or smaller quantities, but principally in Italy, Germany, Russia, Australia, South America, the United States and Canada. Previous to 1878, Italy furnished the only reliable source of supply, and the finest fibre for practical purposes. The Asbestos Packing Company, of Boston, are the original asbestos manufacturers of the United States. Previous to 1878, the only asbestos for manufacture was imported from Italy, but in that year the company opened the celebrated Thetford Mines, in the Province of Quebec, Canada, which produces fibre unequalled by any recent discoveries. The marked difference between the different qualities of asbestos would hardly be realized by any one not familiar with the different formations in different sections. While the Italian asbestos possesses a strong fibre, it lacks the fineness and silky qualities of the Canadian, yet it excels the asbestos found in the Southern United States. At first asbestos was utilized principally for piston and joint packings, for steam-work, non-conducting coverings, for steam-pipes, boilers, etc., until an increased knowledge of its adaptability for other uses, with the added information as to its manufacture, have extended the field, so that it now has an extensive sale as a fire-proof paper for building purposes, between floors, under clapboards, shingles, etc., being a good non-conductor of sound and heat, as well as a fire preventive. It is also made in different thicknesses like cardboard, for use wherever a fire-proof and indestructible material is desired. It is spun into threads, cords, and ropes, made into cloth for filtering purposes, theatre curtains, gloves, and other uses, and used as an indestructible fibre in cements, for various heat-resisting purposes, unexcelled for various uses for electrical purposes, and its use is rapidly extending.

Granulated Cork as a Rubber Compound.

IN almost every factory in the United States ground cork has been combined with India rubber. In some cases it makes an excellent composition, as it has great bulk, and is a good non-conductor of heat. A composition akin to this which is used in England, is of English origin and goes under the name of kamptulicon. It is made of an ordinary grade of rubber and cork waste, which has been ground to a certain degree of fineness. As a rule, the cork dust is put into the rubber mechanically on an ordinary mixer and sheeted out on a calender. This is run upon the cloth, much in the same way as coating for any sort of heavy sheetings would be run. The surface is then covered with a linseed oil varnish that is almost exactly like the shoe varnish that is used in this country, and it is then vulcanized, there having been a certain amount of sulphur and litharge added to the rubber during mixing. As a rule, this is vulcanized in a dry heat. When it is not, the varnish is put on afterwards.

Many of these kamptulicon carpets are printed with plates of various patterns, just as oil cloth is printed. A carpet of this kind has a great deal of wear to it and very little weight. It makes one of the best floor coverings in halls that is known. Mats of this material, of course can be made up into beautiful and curious patterns exactly as rubber mats, but they do not show quite the wear that a mat closely compounded of rubber and whiting, or even of recovered rubber, shows. Kamptulicon as a general floor covering, will probably never be very popular in this country, as a fine grade of linoleum is manufactured that answers the purpose just as well, and is very much cheaper.

To any one who is at all familiar with the manufacture of linoleum, it must be self-evident that the business comes very close to being a portion of the rubber business. The only difference is that instead of rubber, the controlling substance is rubber substitute, in other words—oxidized linseed oil. The oil, after being oxidized, is mixed on a mixing mill that is almost identical with the rubber mixing mill, with ground cork dust and a certain number of different adulterants. The mass, after being thoroughly mixed, is taken to a huge calender—a calender much larger than any rubber calender in existence. The ordinary size for regular linoleum work, is a three-roll machine, with the rolls three feet in diameter and fourteen feet long. This is run by a special engine. The cloth is run through the lower roll, and the mixed mass, after being sheeted the proper thickness, is run down upon the cloth. This calendering gives a beautiful surface to the goods, which are afterwards taken to a sort of vulcanizer and carefully dried out. Of course there are various patents on different methods of handling linoleum, but the business in general does not vary very much from this description. We have a feeling that linoleum is the coming floor carpet, and whether it is made entirely of rubber substitute and various adulterants, or whether some of the lower grades of rubber, or even recovered rubber, are worked into it, we believe that it is in itself the best, most durable, and most satisfactory floor covering for many purposes that has ever been invented.

PARA rubber comes to this country in cases made of pine, well bound with iron. The fine rubber is packed in boxes one foot five inches, by two feet one inch, and four feet in depth, each package containing 160 kilos. The coarse packages measure two feet nine inches square and three feet and two inches deep. Freights from Brazil are 20 to 25 cents per cubic foot. The Booth line brings its freight direct from Manáos, the city upon the Amazon which threatens to rival Pará as a shipping port.

The Tubber Rust.

A TALE IN ONE ACT, BY SHAKESPEAR, JR.—ALL RIGHTS OF PRODUCTION RESERVED.

DRAMATIS PERSONÆ.

DUKE OF BOSTON.....The Nestor of the Trade.
EARL OF WOONSOCKET.....A Hustler.
LORD PARA AMAZON.....A Man who Never gets Left.
SIR AMERICUS.....A Specialty Man.

SCENE.—A magnificently furnished room in a secluded part of a hotel.

DUKE OF BOSTON.—Hie thee hither, that I may pour my spirits in thine ear. Into this secret chamber will we glide and there discuss our trust in quietude, far from the madding crowd's ignoble strife. If it were done, when 'tis done, then 'twere well it were quickly done. Come hither then. I'll plead like angels, trumped-tongued against the opposition to our noble scheme. Rubber is elastic and we can stretch it so to bring the mills within our trust. They must come in, and woe be unto him who keepeth out for with our rubber power well stretched, we'll let it quickly backward fly and sting him on the hips.

Earl of Woonsocket.—'Tis truly said, my lord, in times since past some words we've had, some misunderstandings. But with all my heart we'll deep bury them, bravely fight the common foe, low prices. True, I oft and deeply cut on prices and thus did irritate thy noble soul. O, my offence is rank, it smells to heaven! But what boots it now?

Sir Americus.—Right my lords, much right. Let's turn the cool-edge to our vengeful thoughts and once more unite and from the pulpit 'nounce the Ban-again—once more combine and in sweet converse pass the fleeting hours and form our plans so strong that nothing e'er can shake them. Be thus more than over shoes in love.

Lord Para Amazon.—Amen. We soon can say with confidence, the rubber shoe trade is mine oyster. First would I ask on whom the crown will fall—who'll be President of this mighty trust? As ye well know by mine own efforts strong, have I built up a large and growing trade. Without suggestion but a gentle hint, my head is shaped to fit just such a crown, if so be it a Goodyear soon will come.

Chorus.—Upon what meat doth this our Cæsar feed, that he has grown so great?

Duke of Boston.—Ye all do know me well. For years I've stood upon the outer wall, my form exposed to envious shafts from the enemy's bows, yet never wavered. With cut met I cut, and 45 and 5 I still would cut if necessary. When the noble Ban, chafing, said to me, "Dar'st thou Boston now leap in with me into this angry flood of prices cut on boots?" without delay I plunged quickly in and bade him follow. A crown to look right well should snugly fit a noble, massive and majestic head.

Chorus.—Ye gods, it doth amaze us! Why, man, he would bestride the narrow world like a Colossus, and we petty men walk under his huge leg and peep about to find an easy way to make a sneak.

Earl of Woonsocket.—Perchance there be among you, gentle sirs, one who hath proved his claim to kingly power. Versed in trade, able to manipulate the rubber market, to make many boots. Who hath met knife with knife and cut with cut, and who never yet did cry, "Hold, enough!" Perchance ye know him well of whom I speak—my modesty forbids me call his name.

Chorus.—Can such things be, and overcome us like a summer cloud, without our special wonder?

Sir Americus.—In compromise, my lords, I would suggest the name of one who though not old in years, hath made a name that all the trade respects. I am no orator as Boston is; no sophist as Woonsocket; no logician as Para, but ye know a plain, blunt man who loves his special specialties and friends. I am the eagle and the Globe I own. Long speech doth make me weary; I leave the matter to your thoughts and prayers.

Chorus.—If ye have tears prepare to shed them now.

Duke of Boston.—Since there seems to be some doubt as to whom should be our president—I move we vote. Into this tile let each place his ballot. But do not say, "Where did you get that hat?"

Earl of Woonsocket.—'Tis well. We'll use the Australian system.

[The four meditate seriously for fifteen minutes, then solemnly walk up and deposit their ballots.]

Duke of Boston.—The polls are closed. We'll count the four votes fair. Para, you keep the tally. Now the vote—Boston, one; Woonsocket, one; Para, one; Americus, one. 'Tis no election! Each man voted as he spoke. We'll adjourn and go upon the busy street. A score of friends who write legends for the press are laying for us. Tell them that the Trust progresses fair. Adieu, sirs, adieu. [*Exit*—saying to himself] Thus enterprises of great pith and moment come to naught and lose the name of action.

Lord Para.—Farewell, friends, farewell. I'll meet thee at Phillippi. [*Exit.*]

Sir Americus.—He jests at scars who never felt a wound. [*Exit.*]

Earl of Woonsocket.—I am monarch of all I survey, but 'tis not much. The Crown's the rock we split on. All can't be king, and none will take back seats. So farewell, a long farewell to all our trust schemes. [Curtain.]—*Shoe and Leather Gazette.*

Growing Rubber Trade of St. Louis.

WHILE the jobbing houses of St. Louis ten years ago had a comparatively insignificant trade in rubber foot wear, to-day they control, it is estimated, a trade of $1,500,000 a year. Much of the trade of that city comes from the South and South-west, in which section the demand for rubber foot-wear has but lately been developed. It is, however, rapidly increasing from year to year. Several large shoe houses there have established distinct rubber departments, notably the Hamilton-Brown Shoe Co. and the Brown-Desnoyers Shoe Co. There are several extensive houses in St. Louis which deal exclusively in rubber goods, one of them, the Goodyear Rubber Co., having been in existence for nearly twenty-five years. The Day Rubber Co. are large manufacturers of rubber specialties and do also a considerable business in foot-wear. Perry, Stearns & Co. are only about three years old as a firm, but they have erected and now occupy a handsome building and carry an enormous stock of druggists' sundries, clothing and oil goods. The Missouri Rubber Co. has a large Western trade in rubber clothing. The mechanical and manufacturing rubber trade in St. Louis represents several millions annually.

AT the factories of the Boston Belting Co. are over half a million feet of floor surface, which accounts for the work that they are able to turn off daily.

Current Gleanings.

BY LIGHTNING ARRESTER.

THERE is considerable activity just now in submarine cable making and laying. At the time of writing there seems to be some hitch with the Halifax Bermuda cable, probably caused by the extremely rocky ground near Bermuda, but by the time this is printed the line will no doubt have been successfully completed. Before very long the cable will be prolonged to the West Indies, where more connections will shortly be made by the French submarine telegraph company which has recently established an extensive system of cables between the French islands and the mainland. In South America, the Central and South American Telegraph Company is about to lay a cable along the coasts of Chili and Peru, between Valparaiso and Lima. The present system of the Central and South American Company extends from the Pacific coast of Mexico to Lima, Peru; the new line will compete with that of the West Coast of America Company, which has had a monopoly of the Peruvian and Chilian traffic for about fourteen years.

* * *

Then Spain has invited proposals for the laying of a cable between the Peninsula and Porto Rico, and Portugal has voted the money to contract for one to the Azores. Both these projects have been mooted and fallen through a number of times within the last six or seven years, and probably even now the former, at least, will come to nothing; if it be put into execution the cable will be longer than any in existence at present. All of the cables mentioned above have been, are being, or will be made in England. Some day, perhaps, America will take a hand in submarine cable work, but the day seems far distant, as she looks on so complacently while cables are being landed on her shores or on those of neighboring countries, and makes no attempt at participating in the labor and the profits.

* * *

A concern called the Riverside Plastic Company, having works at Paterson, N. J., is producing a new insulating substance which has been named "Electroid." The manufacturers claim that "Electroid" is a good insulator under all circumstances, and that it "possesses wonderful resistance to acids, atmospheric changes, steam, salt air, water and gas, above or under ground and under water; that it will soften at 210° and will not burn; that it does not expand or contract, takes a polish equal to glass or ivory, and costs about one-tenth the price of hard rubber." These claims are broad and comprehensive enough in all conscience, although they do smack somewhat of the patent medicine style of advertising. If, say fifty per cent. of them can be substantiated in actual practice, there ought to be a fair demand for "Electroid."

* * *

Celluloid is now being used as an insulating material for electric light cables. Messrs. Berthoud-Borel, the French manufacturers of electric light wires, are making a new type of cable insulated with layers of celluloid tape; above the tapes a serving of hemp is put on and the whole cable is plunged in a bath of hot liquid insulating compound.

* * *

New systems of underground conduits appear to be pretty nearly as plentiful as new insulating compounds. The latest thing in the conduit line is the Munsie-Coles system, a most remarkably elaborate combination of creosoted wood, asphalt, paper, wood fibre, pulverized mica, palatial manholes, metallic separators, partial vacua, hydro-carbons, and Heaven knows what beside, all arranged in exquisitely simple fashion on paper,

but forming a complication of means and appliances which would require a staff of experts in every manhole to keep them in proper order. The ducts themselves are to be of wood and paper fibre, with a casing between which and the outer casing of creosoted wood there is a space for insulating material; the spaces between the ducts are to be filled with pulverized mica, and there you have an incombustible gas and moisture proof insulating subway into which companies are expected to draw wires either with very little insulation or with none at all! The palatial manholes are to be built in two stories, and will have an outer wall and an insulating lining, between which is a space to be filled with a hydrocarbon by way of additional insulation and to protect against the infiltration of liquids and gases. There are numerous other details of which a very long description might be given, and altogether the system has been very carefully worked out. Whether it will ever be put in operation on an extended scale is entirely another question, and one about which we may be excused for being a trifle skeptical.

* * *

The Standard Underground Cable Company is about to erect a new factory at Brinton Station, about 13 miles out of Pittsburg, where its present quarters are too small for the increasing business. The new factory will occupy about six acres and will form the nucleus of a small town; several streets have already been laid out and named after electrical terms, such as Ampere Street, Volt Street, and so on.

* * *

Not very much is heard in New York just now of the Cobb Vulcanite Underground Cable, but it appears that the Cobb Company has lately secured the contract for thirty miles of electric light cable to be placed underground in Chicago. Another good contract awarded to the Cobb Company is for 400,000 feet of cable for the Minnesota Brush Electric Company, whose entire system of arc and incandescent lighting in Minneapolis is to be placed on a basis of underground distribution.

* * *

A recent issue of the London *Electrical Engineer* contains a long article on the mammoth central station at Deptford, describing the present only partial working of the station and the methods employed in manufacturing and jointing the famous Ferranti mains. The mains are of concentric pattern and are constructed in twenty-foot lengths. The foundation is a small thick copper tube, over which is placed insulating material consisting of brown paper soaked in hot compound; this is put on, of course, in several layers, and every precaution is taken to exclude all traces of moisture. The insulated tube is then slipped into a second thin copper tube and the whole passed through a draw-plate which compresses the outer tube firmly around the insulation of the inner. Then the outer tube is insulated in its turn and over the whole is drawn a thin steel casing, in which a small hole is left for the insertion, under pressure, of hot wax or bitumen, which drives out all air and forms a compact and solid mass.

* * *

The jointing every twenty feet of a cable intended to carry alternating currents at a pressure of 10,000 volts, is an undertaking calculated to cause dismay and apprehension in the mind of almost any electrical man, but the difficulty has apparently been surmounted by Mr. Ferranti and his method of jointing the mains is ingenious and reported to be perfectly effective. One end of the main is turned down by special machinery in a taper of about six inches, and the other end is hollowed out so as to leave a conical space into which the tapered end exactly fits. The inner tube is joined by a short length of solid copper rod which fits accurately into the tube; the two sides of the joint are forced together by hydraulic pressure until well home, then the joint is heated, causing the smooth taper surfaces to unite. A short length of copper tube, previously placed around the outer conductor, is slipped over the joint and corrugated down at each side, thus securing perfect contact. Then a paper insulating sleeve is slipped along and a steel sleeve to join the outer casing over that; through a hole in the steel sleeve hot wax is forced in to fill up the joint, and finally each end of the steel joint protector is corrugated down over the main steel tube, and a compact, solid joint is completed.

* * *

The operation is a pretty long one to describe, even in condensed form, and must be no trifling piece of work to carry out in actual practice. All the operations touched upon above, however, are performed by special machinery designed for the purpose, and so far no serious difficulty has been encountered. A considerable length of the main has already been put down and tested, but it will be some time yet before connection with London is made, and the working current, which will be the crucial test, turned on. There are to be three separate mains between Deptford and London, each one between six and seven miles long. A main distributing ring will probably be run round the inner circle of the Underground Railway, from which the company will be able to supply customers in many different districts.

The Discoverer of Erasive Rubber.

THE question as to who was the inventor of the pencil eraser is one that has caused considerable interest from time to time, and it is only lately that some one in France, who was poring over the history of the Academy of Sciences in Paris for the year 1752, came upon the following passage which explains the matter:

"Those who make use of pencils from lead mines to draw architecture, fortifications, and so forth, use the crumb of bread to rub out the marks of the pencil. M. Magalhaens, or, as we spell it, Magallan, member of the Academy, a worthy descendant of the great navigator who discovered the strait south of Patagonia which now has his name, proposed a more effectual and convenient eraser in the shape of a piece of rubber which can always be carried about. Rubbing by this new method is found to more satisfactorily remove the marks of the pencil and all other spots that are on the paper."

A Rubber Ghost Story.

"WHAT do you do with these old rubbers?" A large pile of dilapidated foot coverings in all stages of wear, piled in a heap in a wholesale junk dealer's, was what drew forth the question.

"Why, make new ones out of them," was the reply.

"Make new ones!"

"Certainly! boil them over again and you have a better quality of gum than you had before. You see the more rubber is boiled the purer and better it becomes. The finest rubbers in the market, those made from the best gum, are made from old rubbers that have been boiled and boiled again."

"If true, that is a very strange fact," said old inquisitive, walking away and moralizing what beggar wore his rubbers before him.—*Albany (N. Y.) Argus.*

King Kalakaua on Rubber Culture.

MR. GEORGE B. THOMSON, agent in St. Louis of the Goodyear Rubber Company, writes to the INDIA RUBBER WORLD that he has no doubt but that the rubber tree could be cultivated to advantage in the low lands of the Sandwich Islands. Last year Mr. Thomson, in company with Marcus A. Wolff and John B. Leggett, visited the Hawaiian Islands, and in the course of their travels made many investigations concerning the commercial possibilities of the *artocarpos incisa*, commonly known as the bread fruit tree. Their examinations attracted the attention of the Government, and the officials became greatly interested, as is proved by the fact that Mr. Thomson has received a letter in reference to the matter from King Kalakaua himself. The letter is as follows:

HONOLULU, May 10, 1890.

GEORGE B. THOMSON:

Dear Sir—Your communication of the 29th of April last has come to hand and I am very happy to feel that our conversation last July, regarding the cultivation of the India rubber tree. The extracts of printed matter of which you have been kind enough to inclose have been perused by me with a great deal of interest, and I shall take the first opportunity, now that our Parliament will soon be in session, to give the fullest consideration to this most valuable addition to the resources of my country. There is a species of the *ficus elastica* growing here, but whether it is of commercial value I have not the least idea. There are other species of the same genera, such as the *ficus religiosa* and *ficus indica* which grow here with prolific profusion. The *artocarpos incisa*, or the common bread fruit, probably belongs to the same class, but perhaps of a very poor and inferior material for the extraction of the gum necessary for the production of a valuable commercial product. And I have never known it to be tested by scientific analysis.

There has been no official test of any of these plants mentioned in this letter made by our government here, but I will take the greatest interest in the matter were we furnished with modus operandi of proceedings in the cultivation, raising and producing this article of commercial value in our country. There is a company now being newly started in the district of Kona Hawaii, where I am now now at present located, and this letter together with the extract in the paper you have inclosed regarding India rubber, will be submitted to those who have interest in the company for further correspondence and development of the enterprise.

Please send us all particulars regarding this most interesting subject. I remain yours very truly, KALAKAUA.

Cultivating Rubber With Coffee.

THE following article, published in *Las Novedades* of June 26, under the heading "Caucha," has been translated for the INDIA RUBBER WORLD by Mr. Courtenay De Kalb:

"We possess here a precious branch of agriculture, which has not fixed the attention of farmers, an oversight which is indeed actually unpardonable. From day to day the market for this gum grows better, both in the United States and in Europe; its applications in the arts are being rapidly extended; and to-day the Colombian article has increased from 55 cents to 58 cents per pound, while the quantity obtainable is very greatly reduced, and will grow daily smaller because of the deplorable principle adopted in cutting down the tree to extract the milk. Caucho may be cultivated easily in lands which will produce coffee, for which it serves excellently as a shade, since it grows very rapidly, especially the small leaved variety, which is also the richest in gum. It is furthermore very efficacious for retaining the moisture in the earth, and may be cultivated in pasture lands, thus affording a double benefit. Cultivating it as a plantation of shade trees for a coffee grove, it furnishes the farmer, in a very short time as we have seen, with a protection for a situation exposed to the sun, which would lower the value of the coffee, also it is always a prudent precaution not to adhere to a single crop in the management of a farm, above all in new countries where the changes of values in the various products are so sharp and unexpected."

Daily Problems in the Rubber Store.

BY MOSE M. BEAK.

SINCE the appearance of my article in last month's edition I have heard several criticisms in regard to it; one argument advanced was to the effect that it was all very well to read about, but a retail rubber store in a high-rent brown-stone front will not pay. Well, who said it would? Or who advocated high rents or brown-stone fronts? You probably do not need any better rent than you now have, but more skill and care in arrangement of stock. Every cent expended and every moment's time put upon original and taking devices for attracting customers is thoroughly practical. People will not buy anything in a store kept in the crude and slipshod condition that was in vogue twenty years ago.

In the retail rubber business as well as in other retail businesses you must keep up with the procession or get stepped on.

I hear from one wise man that "it is impossible to make the display in a show window that could be done in other lines of business." Well, brother "rubber man," I agree with you; it might not be so gaudy a display as a fashionable dry goods house might make, but how much more novel it could be made, and what a greater concourse of people would be attracted thereby.

I noticed a neat and novel display in a New England store a day or two ago. The window was dressed very neatly indeed and in the front was one of the Glover Co.'s portable bath tubs, filled with water, in which were seated two of the Lambertville Jointed babies, a negro and a white enjoying a bath. The idea was novel and had the effect of keeping spectators before the window continually for several days, and kept clerks busy answering the numerous questions propounded in regard to it.

I venture to say that a display can be made in a rubber store-window each week which will awake the curiosity of the general public more than could be done by any other retail business, and that too without going outside its own grounds for attractions.

One other department which pays the retailer if conducted properly is the repairing department.

Every clerk in a retail rubber store should be able to do a neat piece of work at the bench; indeed I know of some who have become quite expert. It fills up part of the spare time on dull days and is a source of quite a little revenue.

Another thing worthy of mention in connection with the retail business, more so perhaps than in some other lines, is the question of seconds on some goods. Now my opinion of seconds on some articles of rubber is, that they are a great deal like seconds on "eggs." Nobody likes to buy eggs and find out from bitter experience that they are "seconds," though a

great many like to sell them. The public have been and are to-day in many cases deceived when buying wearing apparel and footwear, and it is no wonder that the rubber trade is made the butt of so many jokes. People go to the rubber store very many times from an impression that they get a better quality of goods than can be got elsewhere. Now if the dealer has taken advantage of them, why should he grumble because they are on to his little game and buy elsewhere?

The prices of goods to-day allow you to give your patrons a good honest article, leaving the seconds to be sold by others outside the trade, which will be to your benefit in the end.

If you wish to deal in seconds mark them honestly and point out the defect, and let your patrons choose between that and something better. What in the name of common sense does it avail any man in the trade to sell a lady a circular which he knows will let water through, even if he sells it for twenty-five cents, when it is an article worn to keep the water out? If a rubber circular was worn to keep the dust off it might be all right, although I am sorry to say there are some sold which won't keep out even the dust.

It all has its effect upon the business. To be sure there are some goods which manufacturers sell as seconds, which for actual wear are just as good, but they are bought as seconds and as such should be sold, the second mark being pointed out to your customer and fully explained, and not left to be discovered by him later and brought back to you. Few men ever started and reared a paying business on the principle that deception is the best policy. The most prosperous dry goods stores to-day are advertising goods which are "off," and making prices accordingly, are making a point of the fact that they always give the public the benefit of any good trade they make on seconds. How much more desirable are seconds on dry goods than on rubber coats and gossamers?

We are all in it, and if we are to capture the bulk of the rubber trade in the rubber store, we have got to do business in nineteenth century style.

Curious Information Regarding Rubber Shoes.

A GENTLEMAN, whose information on technical subjects is supposed to be very complete, and who has a name that has been pretty well known in two worlds, writes an article on the fabrication of rubber shoes, which is of the intensest interest. After describing the old shoes that were made of pure gum in Para, years ago, he speaks of the present processes, and with a dogmatism and authority that are extremely convincing. One statement of his, for example, is that the rubber coating for the uppers, and presumably for making the sole and heel, is dissolved in some suitable solvent, and is then mixed with a certain quantity of linseed oil, half boiled, we should say from his description, and then, without any further compounding, is spread upon the cloth. He says a little lamp black is sometimes used to color this matter, and that it is given a coat of asphaltum varnish to give it a fine lustre.

As his statement has been pretty widely published, we feel it almost a duty to say just a word upon it. As far as shoe manufacturing goes in the United States, this process is not carried out, as almost any one should know. The rubber for the shoes is always mixed mechanically, and far from having any linseed oil preparation in it, there is no one manufacturer that uses anything of the kind to-day. A certain amount of compound, such as whiting, litharge and lampblack, and a little bit of coal tar is incorporated with the rubber, but as far as asphaltum varnish is concerned, we know of no one that makes any such varnish, and know of no one that wants anything of that kind. The elastic varnish that is used on rubber shoes and boots to-day, is neither an asphaltum varnish, nor is it—as some of the newspaper writers on rubber assert—a thin solution of black rubber varnish. It is a linseed oil varnish, which is manufactured very carefully, and is put on to give a lustre to the shoe.

In closing his article, the gentleman states that after the shoes are pasted together they are subjected to a burning process, and then they are ready for use. This burning process that he talks of, strikes us very favorably indeed, and is what a shoe made that way ought to be subjected to; and the more it is burned the better it will be for the manufacturer.

A New Rubber Factory in New Jersey.

THE New Jersey Rubber Company have been incorporated recently, under the laws of the State named, with $25,000 capital. The place of business is to be Lambertville, N. J., and at first the Company will reclaim rubber only. They expect to begin operations about August 1st. The Company are in possession of the plant known heretofore as the Lambertville Iron Works, composed of five main buildings, respectively in size 150 x 74, 130 x 45, 80 x 45, 40 x 30, and double office 40 x 30 feet in size. The buildings are alongside the Belvidere Division of the Pennsylvania Railroad. The present capacity of the works is 7000 pounds of reclaimed rubber per day of ten hours, there being water power equivalent to 150 to 200 horsepower. The President and Treasurer of the Company, Mr. Peter V. Voorhees, is a member of the bar of Camden, N. J. The Secretary, Mr. Spencer M. Alpaugh, is a member of the firm of Alpaugh & Magown, of Trenton. The General Manager, Mr. Edward R. Solliday, up to April 1st, was General Manager of the Union Mills Paper Manufacturing Co., of New Hope, Pa. The Superintendent, Mr. John Deakin, started Mitchell's Rubber Reclaiming Works in Philadelphia, and operated them for several years. More recently he has been connected with the works of the Gutta Percha and Rubber Manufacturing Co., in Brooklyn. The mills to be used by the new company were furnished by the Birmingham Iron Foundry Co.; the steam generator and devulcanizer by John E. Thropp of Trenton, and the water wheel by S. Morgan Smith of York, Pa.

"Peerless" Display of Railway Appliances.

THE exhibition of railway appliances at the recent convention of railway men at Old Point Comfort, Va., embraced a display by the Peerless Rubber Company, of New York, which the *Railway Age* describes as one of the most interesting present. The steam and air brake hose produced by this company are made of a compound that is not affected by steam, heat, cold or oils. In fact everything it makes is composed of this compound—an especially important advantage to railways because of the fact that the same hose can be used both for brakes and steam, avoiding the necessity of keeping two separate styles in stock. Of course the company manufactures a great variety of rubber goods, but the articles most used by railways are the air brake and steam hose, belting, valve rod packing, hose coupling, steam packing and elastic roofing. And these may be said to be its specialties. Mr. C. H. Dale is the company's general sales agent, adds the *Age*, and certainly proved a most faithful and efficient one at the recent conventions. He is strong in railway circles where he is particularly well known.

Rubber and the Noises of City Life.

TO people living in the great cities, and even to those business men who listen all day long to the rattle of wheels, the rumbling of heavy drays, and the host of street noises that any large metropolis furnishes, there comes the appreciation every now and then, that the acuteness of their hearing has been marred, if, indeed, the whole tone of their nervous system has not been seriously impaired. As business men wake up to this, there comes more and more a call for the lessening of the street noises. Exactly how this can be done is not so much a matter of question as is the problem of cost. Of course it is well known that if the principal thoroughfares were covered with the proper kind of concrete, that the noises would be greatly lessened. Not only that, but traffic would be made much easier. But here comes the question of cost. The streets of New York, or Boston, or Philadelphia, are in a constant upheaval any way; gas pipes, steam pipes, sewer pipes, and cable roads are so constantly being put in, that the pavements are half the time torn up. Of course a pavement of stone blocks, being once torn up, can be relaid. The concrete pavement would be virtually destroyed. A rubber pavement, were any city progressive enough to put it in, might be laid in blocks that could be taken up and relaid without trouble. At the present time, however, the rubber pavement, by reason of its cost, is out of the question in this country.

The concrete pavement is not likely to be put in very largely under the next ten years. What, then, is a simple solution of this vexed problem? One can only turn to rubber, as it may be applied to the various vehicles that are responsible for so much of the noise. In Philadelphia, for instance, where the new line of Broad Street omnibuses go rumbling, like so many huge bass drums, over that horrible rubble pavement, the noise was practically done away with, and the jar much lessened, by placing heavy rubber ties upon the coaches. It was found, however, that there was considerable noise from those vehicles which came from the rattling of the panes of glass in the windows, and the rattling of the sashes themselves. This latter, of course, could be overcome by the proper setting of the glass, and even if the putty dried and shook loose, a few wedges of rubber would entirely dissipate the noise.

Concerning the effect of noises upon the nervous organization, some tests were made recently upon boiler-makers to discover how much their hearing had been affected. Out of a body of fifty men, it was found that not any of them had the normal acuteness of hearing. The average hearing faculty of the body was only 10 per cent. of what it should be. They were not an especially nervous set of men, as the work was hard, and their habits simple, but seated in a lecture room they were totally unable to hear the voice of the lecturer, and some of them had become so hardened to the noise of the hammering, that they could go to sleep inside of a boiler while the rivets were being driven in and set. To an apprentice in this business, a gentleman presented a pair of tiny India rubber plugs, to be placed in each ear, and it was found that the trouble that he was experiencing in getting his ears accustomed to the horrible din from the hammering upon the iron plates was almost entirely done away with, and he could work within the boiler with comparative comfort.

It is probable that the boiler-makers could not be induced to wear plugs of this kind, but it is at the same time a simple but striking illustration of the manner in which vibrations of any sort are deadened by India-rubber. Almost any householder will find that, whether he lives in the city or not, there is about his house, especially on windy nights, an immense amout of shaking and rattling and creaking noises, that are many times exceedingly detrimental to the sick, and that are really disturbers of the peaceful, ideal rest that no one needs more than the hard-worked business man. A few rubber fenders for the doors, a little rubber packing for the windows, rubber tips for the chairs, and various applications of the elastic gum where there is a rattle, or a jar, or a creak, will do away with much of this annoying noise and greatly enhance the comfort of home life.

The Manufacture of Rubber Sponges.

A NUMBER of years ago, a wealthy gentleman in New Jersey, made up his mind that he would become a manufacturer of sponges made of rubber. Hiring a well skilled rubber man, he set up a small laboratory and began. The experiments that these two gentlemen made lasted over a period of about five years and ended in failure--not but what they made sponges, and some very handsome ones, but it seemed impossible to make them durable. As far as we know, rubber sponges have not been made successfully at any time in this country, perhaps, as much as anything else, because there has been no great call for them. In England, Germany and France, however, they have been made quite successfully, and it is not an unusual thing to see a soft rubber sponge which has been vulcanized to a hard rubber plate, that has in it all the characteristics of the finest sponges, and is even softer and cleaner.

It is said that the first of these goods were made by English manufacturers, and that the art has grown so that they are not only able to imitate the very best natural sponges, but they make goods that far surpass them in durability and softness. With manufacturers in England who are in this line of business, the process is a secret which is so carefully guarded that not even a brief description of the method of compounding, manipulating and curing has thus far leaked out. The line of experiments pursued in the New Jersey town, however, are without doubt very much similar to the methods these foreign manufacturers practice. The basis of the compound of which the sponges were made, was a mixture of rubber and a light earth which was run into thin sheets, and then cut up and dissolved in bi-sulphide of carbon. This, when in the form of a thick cement, is placed in a metal vessel with sides that are exceedingly high above the cement as it rests in the the bottom of the vessel. The heat is then

applied beneath the vessel so that the solvent is forced up to a boiling point. Of course a great deal of the solvent begins to evaporate at once, and as a consequence the cement becomes more tenacious and sticky every moment. The more this becomes so, the harder it is for the bubbles of the solvent to break their way through it, and the effect, therefore, is that it becomes more and more porous and full of little cells. A great deal of skill is necessary to do this just right, that is, in not driving out the solvent too suddenly, for the uniformity of the cells depends a good deal upon the slowness of the heat. If a very sudden heat is applied to the solvent, the chances are that the sponge will be a mass of little cells with now and then one huge cell, but as we have said, with the slow process the sponginess is obtained with the fine pores distributed very evenly throughout the whole. Vulcanization is secured by one of the acid processes, and must be conducted with the utmost care.

Just what the future of this sort of goods is, it is very dfficult to predict. The fact that they are sold very largely in Europe may mean that they will one day be largely used here, or it may not. What the capabilities of the sponge fisheries are, we do not profess to know. If ever the time comes when fine sponges are a great rarity, there is no question but what India rubber sponges will take their place, and probably do the work satisfactorily. It is more than anything a question of market, and when there is a decided call for these goods, no doubt the manufacturers will hear it, and will supply the demand.

How Asbestos is Mined.

MINING is carried on by cutting down the hills of asbestos-bearing serpentine, much as a farmer cuts down a stack of hay and straw, or by open quarrying on the level. The rock is blasted out, and the asbestos, separated from the containing rock, is "cobbed," that is, separated by hammering from inferior foreign matter. This cobbing is a comparatively easy matter in the case of the finer quality, as it usually separates readily from the gangue, but in the lower grades much difficulty is experienced in separating the fibrous matter from the non-fibrous. At best there is a great waste. Much of the asbestos is in thin and narrow veins, and is wasted, as by the present mode of operating it does not pay to separate this from the serpentine. A machine that will enable these narrow veins to be utilized is needed.

When "cobbed," the asbestos is graded according to purity, color, and length of fibre into three grades, and bagged for shipment. The finest quality, or "firsts," finds ready sales at prices ranging from $80@100 per ton; "seconds" fetch from $50@70 per ton; while "thirds" may be valued at $13@15 per ton. In good mines the yield of asbestos is from 3@5 per cent. of the rock quarried, and the cost of mining may be put down at $25@30 per ton. Returns obtained by the Geological Survey of Canada show that for the year 1888, Canada's output was 4,100 tons, valued at the mines at $255,000, and this the output of nine different mines. Over three-fourths of the whole was shipped to the United States, small quantities going to Great Britain, Germany, France, Belgium and Italy, and being used in domestic manufacturing.—*Popular Science Monthly.*

Now it is Rubber Silk.

AN excellent new waterproof tissue is "rubber silk," which seems destined to answer many requirements. It is a thin and particularly flexible fabric of pale brown tint, having a slight but not disagreeably prominent "India rubber smell" about it. Exposed to cold air or cold water it does not harden or get brittle, while no reasonable degree of heat seems capable of making it sticky; indeed we dipped it into hot water and held other pieces before a fire until it—the fabric, not the fire—began to "smoke," and was too hot for the hand to bear; but, even then, when folded up and subjected to pressure for some time the surfaces showed no inclination to adhere. Although, as regards direct torsion and tension, rubber silk is both initially strong, and does not seem likely to become "rotten" when kept; it tears in either direction without difficulty, and may be divided into bandages or strips of any required size, without the aid of knives or scissors. In price it is quite cheap.—*Exchange.*

How Arctics are Made.

THE Arctic overshoe is a shoe, that while it has not been worn as much as some other forms through New England, still has a certain popularity among many wearers of rubber goods that in all probability can never be shaken, whatever improvements may be made. Almost every large rubber shoe manufactory makes in the course of a year many thousand pairs of arctics. It is said that this shoe originated in the Canadas, but was very soon after made in this country by the old Goodyear Company, and soon afterward all of the different companies were making some sort of arctic of their own. To-day the styles are practically the same.

The practical making up of the arctic is an exceedingly interesting process. In the first place, the arctic maker has what might be called his kit of tools, consisting of a pair of shears, a knife, a roller and stitcher, a brush and can of cement. When he has his tools laid out before him, and the different parts of the arctic brought from the cutting room, he begins in the following way: The lining, which was made in the lining room, and is generally in two pieces, is joined up the front by a strip of piping and thus sent to him. The maker then cements the lining, and when it is dry the piping is rolled around the edges that join the inner sole and on one side of the back, the rag pieces being separated and cemented, and then the cloth part is ready for the lining. In lasting, the lining is drawn over the last and joined to the inner sole by the piping, and is then rolled down firm with a hand roller. Next, the two heel pieces of rag stock go on, just lapping over the inner sole; the rag fillers are put on over the sole; another heel piece of cloth is added and some rag stock put on, which extends more than half way around the shoe. Next, a piece made of heavy cloth, frictioned on both sides is put on at the toe, and extending around at the sides, lapping over the heel pieces. The lining and pieces are then thoroughly cemented and put aside to dry. The next step is putting on the cloth. This consists of two pieces, a quarter and a vamp, which are first made in the lining room by putting cord around the vamp where the lining is to come after finishing, and a cloth facing is put on the quarter where it extends over the vamp. The buckles are then put on; the lower parts of the quarter and vamp are cut in the exact shape of the rubber to be put on. The vamp is put on first by placing the point on a mark on the toe and joining firmly by a friction all over the front. The quarter next goes on the point at the proper height and is firmly connected by the friction and two stays

near the facing. These stays extend over on the rag filler, while an outer filler goes over the sole. The rubber is the next thing. This is in two pieces, a heel and a toe piece, which are cut in exact shape to fit into that cut on the cloth. The heel piece is first put on, brought around and cut off on both sides over the stays of the quarter; the toe piece is fitted into the cloth, shaped and extended to the heel piece, and two seams made, which are carefully stitched. It is imperative to run the stitcher close to the cloth, that a good finish may be made. The rubber is now carefully cut out around the outer filler, and the bottom of the shoe is cemented and left to dry. The outer sole is carefully skived to make it roll down smoothly, and is cemented, and when dry rolled on the shoe and the seams stitched down. The shoes are put on an iron stick, which generally holds five pairs, and put on the cars and taken to the varnish room, when the outer sole and rubber is well varnished, and from there they go to the heater.

In Memoriam—James E. English.

THE late Hon. James E. English, who, at the time of his death, was president of the Goodyear's Metallic Rubber Shoe Co., was the subject of a series of resolutions framed by a committee appointed for the purpose at the recent annual meeting of the stockholders of the company. The committee consisted of E. C. Lewis, E. A. Saunders, Stephen W. Kellogg, Daniel Trowbridge and Bronson B. Tuttle. The resolutions adopted have been engrossed in the most handsome manner by Tiffany & Co., of New York, and bound in a leather cover, having for its centre the emblem of ivy entwined about the oak, with the name, "James E. English" engraved thereon. In the upper right hand corner are the words, "29 years President;" in the lower, "37 years Director," all done in silver. The resolutions follow:

"WHEREAS, The late James E. English was for twenty-nine years the honored president, and for thirty-seven years an influential director in this company, it seems proper that we place upon our records some expression of the sense of loss which his death has brought to us. His services throughout this whole period were always marked with earnestness, faithfulness, sincerity and discriminating judgment. Conservative in temperament, his mind was open to progress; kindly and courteous in speech and manner, there was in him the fibre that strengthened every interest in which he became engaged; sound in his financial policy, his wisdom brought the ripest fruit for this company's welfare; firm in his own opinions, he was liberal to those of others, and in his death this company laments the loss of a wise counselor and an able and trusted leader. We only add a deserved but willing tribute to his sterling worth when we say that in the generation during which he largely shaped the policy of this company, his best judgment, his kindliest interest and his faithful attention were always at our service. He brought to his work here the same attention to detail, the same calm, unerring judgment which characterized him in all his business relations, and while these same qualities which compelled us to honor and trust him with the direction of affairs, were appreciated by many others also, and he was loaded with other and greater duties and larger honors than we could confer, yet the call never came to him from this company that he did not promptly hear, and to which he did not most effectually respond. We feel our loss to be irreparable, but it is lightened by the thought that we still have his example left to guide us in the future. Therefore, be it

"*Resolved*, That it is with most profound sense of our personal loss that we tender to the bereaved family of President English the assurance of our sincere sympathy and heartfelt condolence with them in their great bereavement and affliction, and that the passage of time serves only to deepen that sense of loss as we more fully realize all that he was to us, and that his dignified presence shall never again grace our meetings, and that his voice upon which we used to rely for advice and counsel is forever stilled in death. And, be it further

"*Resolved*, That a committee be appointed to convey to the family of President English, in a suitable way, a copy of the foregoing resolution, and further that the same be spread in full upon the records of this company."

What a Red Apple Did.

AT the two hundred and fifteenth anniversary of the founding of the town of Springfield, Mass., Mr. E. W. Kinsley related an anecdote connected with the earlier life of Charles Goodyear, the famous rubber inventor. Goodyear once resided in Springfield. Being very poor, he was one day arrested for debt. He had a suit of clothes making at a tailor shop in the city, and on Saturday night, when the clothes were to be delivered, one of the firm remarked that Mr. Goodyear was at Sheriff Foster's. But he said to the errand-boy, "When you go home, take Mr. Goodyear's suit of clothes to him, and tell him he can pay for them when it suits his convenience." On his way to the jail the boy stopped at home for supper. A barrel of fine red apples had been delivered that afternoon at the boy's house, and his mother requested him to unhead it. He did so, and took out of the barrel one of the largest apples and put it in his jacket pocket. On reaching the jail he found Mr. Goodyear reading in the sheriff's office, not behind the bars, but only in the jail limits. He delivered the bundle and the message of his employer, and then it occurred to him that the red apple would perhaps be acceptable to the prisoner. He took it out of his pocket and handed it to Mr. Goodyear, who thanked him very kindly.

On the first of January, 1854, this young man was in Paris, in John Munroe's office. It was a fete day. Lord Palmerston and other notable Englishmen were in the city conferring with Napoleon about the allied army. The young man sat down to read some letters that had been received for him. As he finished them he looked up and saw Mr. Goodyear in the next room, and soon Mr. Munroe came to him and asked, pointing to Mr. Goodyear:

"Do you know that gentleman?"

He replied that he did, and Mr. Munroe added, "He wishes to see you." The young man went in, whereupon Mr. Goodyear looked up and said:

"How do you do? You are from Springfield, and used to be a clerk for Palmer & Clark. Do you remember a certain red apple that was once given to me?"

The young man answered in the affirmative, and expressed his gratification that circumstances had so greatly changed, remarking at the same time that he had noticed with much interest what had been said of Mr. Goodyear, especially in connection with the India-rubber pontoons which he was then making for the French government. After a pleasant conversation, Mr. Goodyear invited his young friend of the red apple to call at his hotel at noon. That afternoon the emperor, one other distinguished person, Mr. Goodyear and the clerk from the Springfield tailor shop were the only ones that drove up and down the Bois de Boulogne behind four horses.—*Youths' Companion.*

The Okonite Consolidation.

BOOKS were opened in New York and London on July 1st for subscriptions to the stock of a new company having for its object the consolidation of the Okonite interests of the whole world. The International Okonite Company, Limited, as the prospectuses had it, announced a share capital of £340,000, divided into 7000 preference and 7000 ordinary shares of £10 each. Of these "5500 preference and ordinary shares had been applied for by the directors, besides those applied for by their friends," and 11,300 shares were to be allotted in part payment of the properties. The inducement offered to stockholders was that "the preference shares are entitled to eight per cent. preferential dividend, payable half yearly, and to a bonus of two per cent. additional out of surplus profits of every year after the ordinary shares receive fifteen per cent. dividend. From the remaining profits the ordinary shares will then be entitled to a bonus of five per cent."

The Board of Directors, as announced, consists of Lord Greville, Chairman of Eastman's Limited; Samuel Pope, Q. C., Chairman English Association of American Bond and Shareholders; Major Jones, R. A.; Sir Alexander Armstrong, K. C. B., F. R. S., Chairman of the Halifax-Bermudas Cable Company, and Harry Dobree, Banker, all of London; John H. Cheever, of the New York Belting and Packing Co.; John L. Martin, Vice-President of the Southern and Western Air Line Railroad Co.; H. Durant Cheever and W. L. Candee, directors, and F. Cazenove Jones, Vice-President of the Okonite Company of New York City. The plants to be controlled are the factory of the Okonite Co. at Passaic, N. J., and the wire and cable works of Messrs. Shaw & Connolly of Newton Heath, Manchester, England. The organization plan, according to cable advances from London, has proved to be a success, subscriptions having been received in excess of the amount of stock for allotment, and the signing of the papers and completion of details are substantially completed.

Great popularity has been developed for this peculiar insulation, described in the May number of the INDIA RUBBER WORLD, and it is calculated that the enterprise fully developed will produce extraordinary profits. The situation really favors this presumption. The story that has been read the world for the past few years, has been one of expense and calamity to all who have been careless in the selection of insulation. It is firmly believed that the tendency in insulation is towards rubber, nothwithstanding its first cost, and the singular success of the Okonite Company would seem to prove this statement. Beginning with a small factory, the company soon found itself crowded with orders, and night work had to be inaugurated. Increasing the capacity of the factory to keep up with the demand, they found after a short time, they had miscalculated and mills are running day and night again. Orders of 1,000,000 feet are often received from a single source, and between three and four score miles of Okonite is the daily output of the Passaic mills. The future demand will be great; both for outside and inside insulation. So far the profits have doubled up year by year.

According to the figures given in the prospectus quoted from, the net profits of the Okonite Company, of New York, for the last three years were as follows: For 1887, they were $37,601; for 1888, $51,207 and for 1889, $115,892. The net profits for the consolidated business, which, by the way, are to be calculated from January 1, 1890, to the period ending July 1, 1891, are estimated at $371,000, and for the twelve months following, at $388,000. In addition to the growth of the business acquired, it is expected that profits will be realized from dealing with patents. It is not surprising, with such a balance sheet in view, that subscriptions to the stock were prompt and liberal.

Where Only Long Rubber Boots are Worn.

ACCORDING to an exchange, Franklin City, Accomack County, Va., must be a curious place. It is built on stilts, and the ocean tide cleans the streets. The people devote themselves to catching oysters in Jinkatig Bay, and there is much wealth amid the city's odd surroundings. The railroad tracks are ballasted with oyster shells, and the roadways are graded with the same.

The men dress in long-legged rubber boots, twilled cotton overalls, and jackets and sou'westers, which they wear on their heads at this season with the flannel or lining side out. They are all expert boatmen, boatbuilders and sailmakers; they can and do, tong, dredge, and cull oysters to a man. They wear their beards full, their faces are red, their hands hard, and their manners bluff. They never lock their doors at night, because there is not a man there who would steal money.

The women, who are very pretty, also wear rubber boots, and dresses and sun-bonnets made of calico. Leather boots and shoes are seldom worn by the inhabitants.

Recovered from the Effects of Fire.

THE firm of Hohmann & Maurer, manufacturers of special temperature and pressure indicators, which have found a wide use among rubber manufacturers, since having been burned out at No. 90 Fulton Street, New York, have removed to Nos. 167–169 Plymouth Street, Brooklyn. The fire destroyed their shops and put the firm to serious loss and annoyance, since they were already rushed with orders, and it was impossible to fill them for some weeks. In their new location Messrs. Hohmann & Maurer have shops about six times as large as the old place, and they are putting in new machinery and special tools. Besides having the largest thermometer works this side the Atlantic, they will have the best equipped works in the world for the manufacture of their specialities. Their product includes special temperature and pressure indicators for steam and dry heat vulcanizing, oil and varnish boiling, etc. In future they will be able to turn out all orders with the promptness which has characterized all the business of the firm in the past.

THE Woonsocket Rubber Co. are bringing out a low-cut, light-weight overshoe called the "Alice." It will take the place of foot holds. Goods doing away with heavy uppers are in demand, the "Zephyr," introduced last year by the same company, meeting with a very ready sale. It has a heavy sole and toe, and approaches the light weight of gossamer on the upper. Long hip gum boots, which were supplanted in a great measure by "Duck" boots for about two years, came in favor again last year, and now seem bound to stay.

Trade Notes.

THE report that the Columbia Rubber Co. had removed their Woburn works to East Braintree, Mass., is an error. It is a pardonable one, however, for the East Braintree people, seeing the capacity of the mill more than doubled, jumped at the conclusion that the other factory was to be consolidated with it. Had they talked with the Woburn people, however, they would have learned that the mill there also had its capacity greatly increased, so that both plants will be run the same as ever, each turning out double the former amount of work.

—It is pleasant to see that the sons of rubber men, as well as rubber men themselves, are hustlers and successful in business. Mr. Douglass E. A. Hunt, of the *Textile World*, is said to be one of the most successful subscription men, although he is but a little over seventeen years old. He is a son of Mr. Hunt, who is well known as one of Geo. A. Alden's right hand men.

—Manufacturers of leather jackets report that the trade is beginning unusually early this season.

—The clothing season is already beginning to boom, and one of the signs of the times is that the Stoughton Rubber Co. are advertising for gossamer stitchers.

—In a recent number of the *Shipping List* is a list of the trusts now in force in the United States. Among others they put the Oil Cloth Trust. It is just here that they make the same mistake that they have been making for a long time on what they call the Rubber Trust, that is; they call a combination a trust, while the two are as radically different as the east is from the west.

—Mr. E. H. Paine, treasurer of the American Rubber Co., goes to New Hampshire for his breath of mountain air this month.

—Mr. Henry C. Morse, treasurer of the Revere Rubber Co., is taking as his summer vacation a trip to Europe.

—Mr. A. N. Loring, president of the Columbia Rubber Co., spends the summer at Swampscott, where he has a beautiful summer residence.

—Mr. Walter C. Chase, treasurer of the Mason Regulator Co., of Boston, has just returned from the Car Builders' Convention at Old Point Comfort, Va. The railroad companies, by the way, are the strongest possible friends of the Mason Regulator, the reducing valve, and other steam arrangements that this progressive concern have brought out.

—The possibilities of pumping almost anything in the shape of liquid or semi-fluid are immense. A curious story is told in this line by Mr. Turner, of the Blake Pump Works. It seems they furnished pumps for fibre work which were to make a pail in which should be shipped a fine quality of oatmeal. The progressive shipper of the goods, not content with having his packages made of fibre, actually came to Boston and entered into negotiations with the Knowles-Blake Co., to have a pump made that should force oatmeal in solution into a mould and make the pail itself of that substance, so that not only could the contents of the pail be used for the family, but the outside of the pail could be used for the stock. We believe that it was decided that there was not fibre enough in the meal to make the experiment a success, but that was not the fault of the pump.

—The family of Treasurer Lothrop, of the Boston Car Spring Co., will spend the summer at Griffin's Island, a beautiful watering place just off the Isle of Shoals.

—A great many curious things happen in rubber mills. An old superintendent mentioned the other day a hollow ball, ten inches in diameter, that he had to make from gum that was quite thick and of pretty good quality. It so happened that against his orders the mould was taken out of the heat before it was quite finished by a green hand, and the clamps removed. The superintendent stepped out of his office just in time to see the top of the mould thrown one side by the swelling gas inside, and then to see the ten-inch ball suddenly grow to the size of a barrel before the astonished manipulator, and then burst with a report that shook the building to its foundations. Fortunately no one was hurt, for there was no hot water in the ball, and not enough steam to injure anybody, but a lesson was learned, and the incident is one, now that it is far passed, over which the superintendent laughs even if the green hand does not.

—The Japanese rubber trade is peculiar and perplexing. This particular Oriental wants a straight sole attached to a short leg. He is very particular, and in order that every whim of his should be satisfied, an extra five pairs has been sent along with every hundred, as a safeguard against possible imperfections. These five pairs are a sort of an elephant for the consigner after the selection shall have been made. Then the money gets back in about six months. The manufacturers have got very tired of all this rigmarole, and lately have told the Japanese to make their own shoes—rather surprising to a set of people used to having their own way.

—An exceedingly popular young man with New England trade is Mr. Henry F. Knowles, who is now with J. M. Plummer & Co., of No. 13 Federal Street, Boston. This company have been appointed New England agents of the Globe Rubber Works, and will carry a full line of their mechanical goods in stock. The warehouses on Federal Street are noticed in another column, and it is superfluous to praise the gentleman whom the trade know as "Harry," for his popularity and ability to get there is in itself the best sort of recommendation.

—Mr. W. A. Eldridge, of the New York office of the Woonsocket Rubber Co., is on a vacation in Connecticut.

—The Mason Regulator Co., of Boston, have already invented, and will soon place on the market, a device whereby the whistle of a factory is blown whenever anything occurs to the fire sprinkler service—either in case a fire breaks out, or one of the sprinklers is blown out, which latter accident may endanger the stock in the factory. By a simple device, whenever the pressure is lessened from any cause, steam is allowed access to either the whistle or any other automatic form of alarm. In several instances where this device has been used, it has saved more than its cost by notifying the watchman that there was something the matter with the sprinkler system.

—George A. Alden, the well-known Boston rubber broker, has so far recovered from his recent experience with the rheumatism that he is able now to go into the country, and is rapidly convalescing, much to the pleasure of his many friends.

—J. Edwin Davis, treasurer of the Boston Woven Hose Co., is off for his usual summer yachting trip along the coast and among the islands of Maine.

—Rubber paints that are said to be especially successful in resisting the action of moisture, snow, salt air and water, also fumes from coal, gas, etc., are made in Brooklyn at the Ingersoll Paint Works. Mr. Ingersoll's Liquid Rubber Paints are made in ten different shades, and have already a very fine reputation in the market.

—The old mill of the Hayward Rubber Co., at Bozraville, Conn., which is one of the historic plants of the United States, is now being used as a paper mill. As we remember it, we wonder if they can make anything but black paper, for the building from ridge-pole to foundation-stone was saturated with lampblack.

—Many of the rubber mills that formerly made more or less rubber substitute at their mills have gone out of the business, preferring to purchase from others what they use rather than have the risk and the trouble of making it themselves.

—Messrs. Murray, Whitehead & Murray, of Trenton, announce that within the last two months business has increased with them wonderfully, which is but another indication that the general rubber business is looking up all round.

—The B. F. Goodrich Rubber Co., of Akron, Ohio, are fitting up what will be as handsome offices as are often found connected with a manufacturing concern. The thought of those interested there is that the gentlemen at the head of the concern really spend as much, if not more, time at the office than they do at home, and that they should certainly be made as comfortable as possible, which is a very good idea.

—Mr. Chester J. Pike, of the Wales-Goodyear Co., goes to New Hampshire with his family for a vacation this month. Just how long he will stay will depend upon how long the Boston business can spare him, which, with the way business is looking up, is not likely to be for any extended outing.

—Mr. Edward Angier, who travels for the Newton Rubber Co., is at present making a trip through the West, and from the orders sent in by him to the Boston office it would seem that business is very good and that he is in his usual cheerful frame of mind.

—The Rubber Manufacturers' Mutual Insurance Co., through their genial secretary and treasurer, Mr. B. F. Taft, present us with the following financial statement, made up to June 1st:

Amount at risk	$8,000,000.00
Assets—	
Railroad bonds, corporation notes and cash	131,958.20
Liabilities—	
Unadjusted loss	135.15
Total security	557,341.45
Average cash dividend	60 per cent.

—Mr. J. L. Myers, who was exceedingly successful as a subscription agent, both for the INDIA RUBBER WORLD and for *Hardware*, has accepted a position with the Norfolk Manufacturing Co. as travelling salesman. His specialty is shirts, and he travels from Norfolk, Va.

—Mr. Horace H. Tyer, president of the Tyer Rubber Co., spends the summer at Clifton, Mass.

—The business of making base balls has within the last few years grown to one of great importance. When it is known that at the centre of each ball is a little rubber sphere, and that it must be made of pretty good stock, one can imagine how this helps some rubber manufacturer. We were very much amused by a recent article in one of the daily papers on base balls, where it spoke of the rubber centre pieces to base balls as being run into moulds like the lead for musket balls.

—Considerable of the celebrated Guyot web is imported into this country. The tariff is 35 per cent., but the long use of these goods by Americans and the good quality seems to have a lasting hold on this market, although our manufacturers are making inroads into that trade more and more every year.

—On the 17th of June last the Boston Woven Hose Base Ball team and the team from John P. Lovell Arms Co. had a fierce contest for the supremacy, which resulted in the defeat of the Lovells and the triumph of the Woven Hose. This latter team, by the way, seem to be well-nigh invincible, and in their various games, although pitted against some of the strongest teams in New England, have, as a rule, been victorious.

—J. J. Voorhees, the secretary and treasurer of the New Jersey Car Spring & Rubber Co., of Jersey City, whose leg was recently broken in an accident, at the trying moment of bone-setting was consistent to his business principles, and refused to have his leg set in ordinary plaster of Paris, insisting upon the use, instead, of gutta percha.

—The Chelsea (Mass.) Wire Fabric Rubber Co. are so crowded with orders that they are preparing to erect another large building for the manufacture of their specialties. Their belting and hose, which has a fine steel wire woven into the duck, is meeting with great success, and has stood tests for strength and durability that are really remarkable.

—Quite a profitable business is done by Mr. Drew, of Elm Street, Boston, in the repairing of rubber boots and shoes. He has been in this business over fifteen years, has become quite expert, and is known in and about Boston as one who attends to this work. He is said to have made quite a fortune out of it.

—The Riverside Rubber Co., of New York, say that business is remarkably good for the season of the year. This company deals principally in moulded work, making up druggists' sundries, etc. The demand is for excellent work, and there is no trouble in keeping the factory humming when the quality is established.

—Rubber men like the rapid estimating scales made by H. Kohlsbusch, of New York. One said the other day to an INDIA RUBBER WORLD reporter: "I could not get along without it. Throw that little nipple in the scale, and I can tell immediately how much a dozen, gross or a thousand will weigh." These scales are of the finest material and very accurate. The variation of the weight of a horse-hair would make an appreciable difference when multiplied by 1000. A long list of rubber manufacturers have these scales in constant use.

—Good rubber belts have a great advantage over leather. They drive much better, their elasticity causing them to cling to the pulley and not lose any of their force in slipping, the great trouble with leather, as can readily be seen by the fact of there being so many adaptations on the market to remedy the evil which the rubber by a short cut obviates.

—The T. Martin & Bro. Manufacturing Co., of New York, report a very satisfactory business in elastic web. They have mills at Chelsea, Mass., and Niagara Falls, Ontario. They have in stock about 400 patterns of suspender web and as many more of garter. The most fastidious in taste could not be otherwise than pleased with the beauty of the designs gotten up by them. The Canadian mill is the only one in that country. There has been within the past three months three successive advances in the prices of these goods, aggregating 25 per cent.

—The editor of the INDIA RUBBER WORLD was exceedingly pleased to meet Mr. F. F. Schaffer, superintendent of the India Rubber Glove Co.'s works at Naugatuck, in Boston, a few days ago. The usual two weeks' shut down for repairs comes this month, and Mr. Schaffer is looking forward to a brief vacation.

—Mr. J. M. Plummer, who is probably as well known to the trade as any other man in New England, after a year's vacation, has gone into the rubber business. He has opened a handsome store at No. 13 Federal Street, Boston, which, through a curious coincidence, was in the hands of a Mr. Plummer quite a long time, and the name is still on the windows. The store is about 60x40 feet in size, with the very best conveniences for showing mechanical rubber goods, as there is light from the large windows both at the front and the rear, while below it is a very spacious and airy basement, where no inconsiderable portion of the stock can be kept. The goods that will be carried in this store are those of Brook, Oliphant & Co., of Trenton, N. J.

—In Mr. Chester J. Pike's Boston office hangs a new and handsome water color, which is to be reproduced, and will adorn a banner that before the season is over will be shown in many a shoe store. The picture is of a beautiful little girl carrying an arctic in her arms, and stepping forward with an expectant look in her brown eyes that stamps her as one of the most bewitching little sales ladies that could be imagined. The whole conception is thoroughly artistic, and it is one that almost anybody would stop and study with a feeling of genuine pleasure. It is, to be sure, an advertisement of the Wales-Goodyear Co., but is in such good taste, and so attractive that it will never be thought of as an advertisement, but rather as a bit of refreshing color.

—C. J. Bailey, the inventor of Bailey's Water-tight Footholds runs into poetry now and then in advertising his wares. The following illustrates his original methods:

"Away with rubbers!
Dainty boots they cover
Out of sight;
And get a pair of Bailey's
Footholds Water-tight."

—The Seamless Rubber Co., of New Haven, have practically remodelled their whole plant. By extending the office buildings they were enabled to utilize the whole ground floor from the sidewalk to the end of the lot for a large engine room, grinder and calender room. They have put in four new grinders; have set the machinery so that the mainshaft gears directly from the crank shaft of the engine. They have put in a large Hazelton boiler, and with their accustomed energy and push, planned to do this all with a two weeks shut down. It, however, could not be done, but they have started up again, and their new machinery and new arrangement of buildings are giving the most complete satisfaction.

—It is not perhaps generally known that the best chewing gum is really made from India rubber—that is, from a kind of rubber gum. The sap of the Chico-Zatote, known as the chicle-chicle, is one that has been for a great while put into chewing gum. The best gum for this purpose, however, is the Chico, found in Mexico, which has a peculiar perfume and sweetish taste that is to most people quite agreeeble. It is this that is used in the Adams Tutti-Frutti chewing gum, and millions of boxes of it have been sold. The capacity of Adams' factory is said to be five tons of chewing gum a day, and even now the plant is being increased. It is said that Adams & Sons practically control all of the chico that comes into this country, and that the price of it has gone up from 16 or 17 cents to about 60.

—Mr. W. S. Ballou, of the Woonsocket Rubber Co., has just returned from a two weeks' fishing trip in New Brunswick, N. S. It is said that the sport was excellent. The largest fish caught by Mr. Ballou was a 58½ pound salmon, of which he is justly proud.

—We notice that the Erie Rubber Co. speak very highly of the Sims Company's Automatic Boiler Cleaner. The arrangement has had a very large sale through the West, but as yet has not yet been pushed very much in the East. It is manufactured in Erie, Pa., and from what we can see from the diagrams and plans, we should think it was an exceedingly valuable thing.

—The Tyer Rubber Co., of Andover, are adding to their plant, and besides this have just re-arranged their offices, giving more room for the accounts, which are all kept at the factory.

—The Hon. E. S. Converse, of the Boston Rubber Shoe Co., has presented to the trustees of the Public Library of Malden, Mass., $25,000 to be used in enlarging the art gallery. The building cost $100,000 originally, and was a gift of Mr. Converse to the city of Malden. It is thought that the addition to the art gallery will be built at an early day.

—The telegraph companies are now using more rubber than all the boot and shoe manufactories combined, yet the supply of rubber is no greater than when the telegraph companies used no rubber.

—The business of Converse & Pike, jobbers of rubber goods at Lebanon, N. H., has grown to such an extent that they have determined to remove to Boston, where they expect to occupy the store No. 25 Federal Street after August 1st.

—Henry C. Jackson & Co., jobbers of rubber boots and shoes, of Boston, have retired from the business.

—Miss Carrie L. Lowe, who for ten years past has been an efficient clerk in the retail store of M. M. Converse, at Lebanon, N. H., has bought out the business of his employer, the latter having determined to devote his attention in future to the rubber shoe business.

—The trade in Chinese rubbers has become quite extensive in all the American cities. By this is meant rubbers for Chinamen. This year they are as handsome as the goods made for white men. The shape, of course, will partake largely of the Chinese wooden shoes, having an abrubt turned-up toe. The shoes are elegantly finished, and many of them are made with double sole and fleece-lined.

—The Woonsocket Rubber Co. have applied to the Rhode Island legislature for an amendment to their charter enabling them to increase their capital stock to $2,000,000.

—The rubber mill owned by the Connecticut Rubber Co. at Norwich has been sold to the Willimantic Silk Co., which runs the Preston Mill in the same city, the price paid being $20,000. It is probable that the rubber plant will be used for weaving purposes, and the earlier work of silk making will be done at the Preston Mill. The company intends to use the whole of the new plant, with the exception of the building used by the rubber company for "spreading."

—Mr. Thomas H. Harney, who travels for the Tyer Rubber Co., has started on his usual summer trip through the West. It will probably be five months before he sees Boston again, and during that time he expects to do a large amount of business.

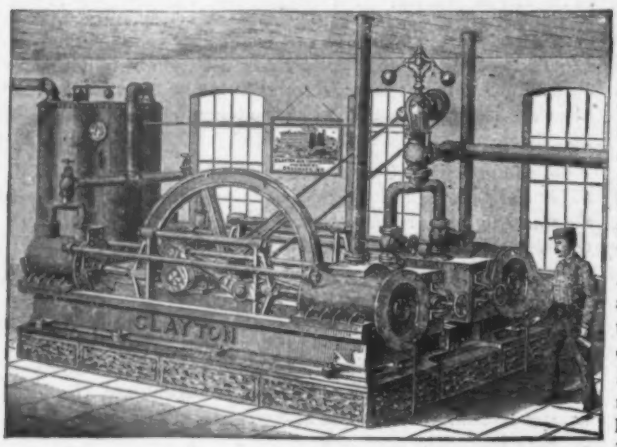
—Hon. E. S. Converse, since our last issue, has landed safely in Europe, and, according to his cable dispatch, had a most delightful voyage over.

THE "metal boats" on the lakes are gaining a reputation for speed in the new fast freight service.

Clayton Air Compressors in Rubber Manufacture.

COMPRESSED air is used for a number of purposes in manufacturing goods from rubber, and especially for stripping hose from poles, for which its use is indispensable. Among the leading rubber companies who are using the Clayton Duplex Air Compressors (shown in accompanying illustration) are the Star Rubber Co., Trenton Rubber Co., Hamilton Rubber Co., National Rubber Co., Lake Shore Rubber Co., Mercer Rubber Co., New Jersey Car Spring and Rubber Co., and many others, all testifying to the uniform satisfaction which these air compressors afford and their excellent design and working qualities.

The Clayton Air Compressors, being duplex, admit the placing of the fly-wheel in the centre of the machine; the



cranks are set at right angles, obviating any dead centre; the air cylinders are surrounded by water jackets which cool them to a uniform temperature their entire length; the suction valves are protected from accident to the compressor, through getting inside the cylinder, by means of safety stems; the connecting-rod arrangement, in connection with the vertical crossheads, works on adjustable slipper guides which remove all weight and wear from the bore of the cylinders, and the air governor (which the makers of these compressors have sole license to use from Mr. George Steele, the patentee) can be set for any desired pressure of air, which it will maintain steadily and automatically without any attention.

The makers will be pleased to forward catalogues, estimates, and general information to any one addressing the Clayton Air Compressor Works, No. 43 Dey Street, New York.

A New Method of Vulcanizing.

HAVING recently been informed of a method of vulcanizing rubber which seems somewhat out of the usual form, I write to the readers of the INDIA RUBBER WORLD, hoping to obtain more information upon the subject. The method used is: Dissolving fine Para rubber to a liquid state and freezing the same into a solid mass. It is then placed in a square or rectangular shaped iron vessel, and by means of a screw press is pressed into shape.

The solvent, in a semi-fluid state, works out through the press at the upper sides. This rubber is kept under the press in a congealed form for three months, the press being screwed down a little harder every day. During this time the moisture entirely evaporates. It is then removed and allowed to dry for a few days in a moderately cool room, after which it is cut into thin slabs by means of knives, and is said to have an elasticity equal to that of sulphur cured rubber.

This rubber being entirely free from sulphur, is specially adapted for insulating wire, and is attracting a great deal of attention from electrical men who require a perfect insulation and for fine grades of goods. It is of necessity an expensive rubber, but its superiority is so great that the foreign houses manufacturing it are largely behind in their orders and are increasing their facilities for supplying the demand. O.

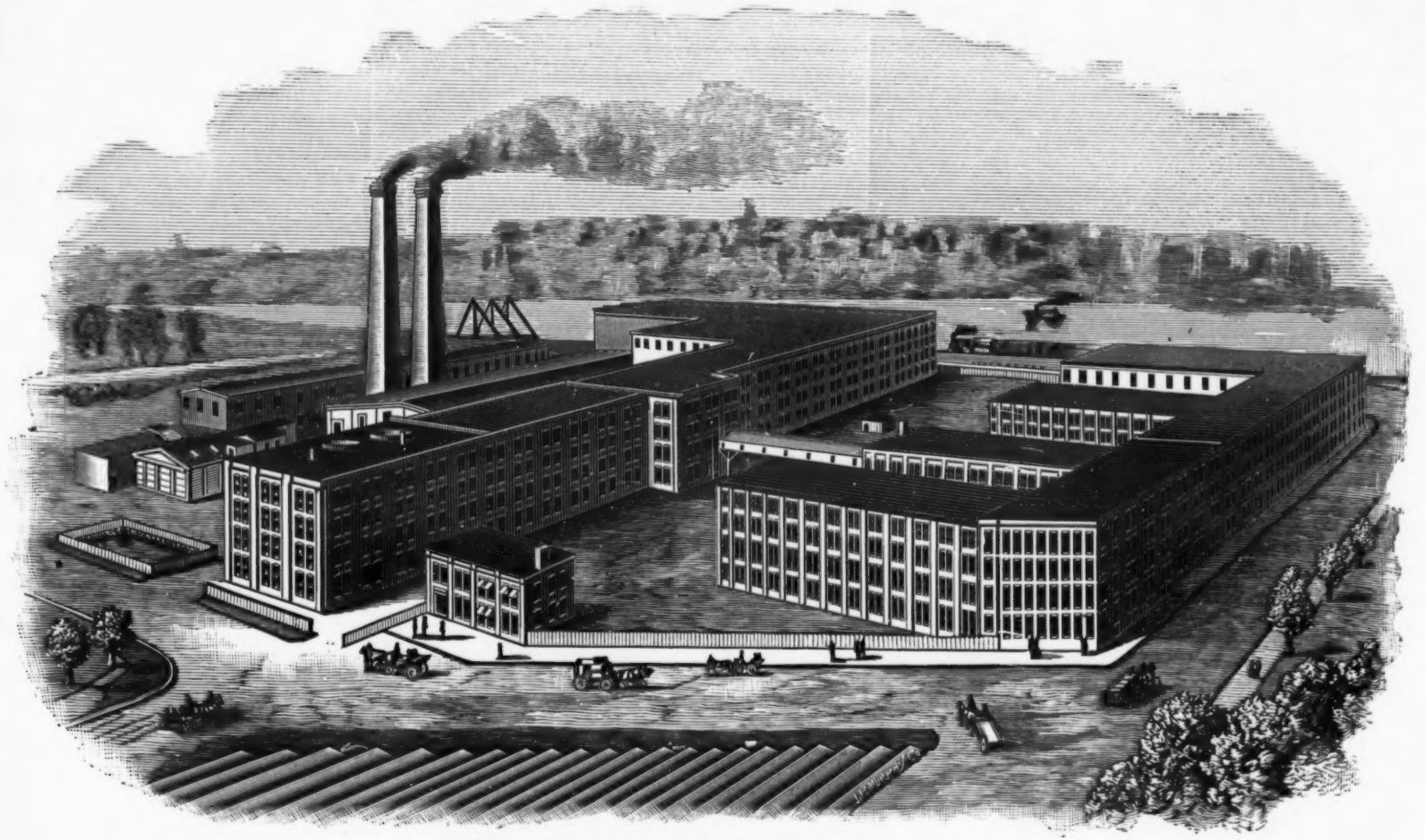
Rubber Business in New Brunswick.

THE long-established firm of Estey, Allwood & Co., rubber dealers at St. John, N. B., write to the INDIA RUBBER WORLD to suggest that with two lines of steamers now plying between New York and St. John, there ought to be a good representation of the American rubber trade at the September exposition in the latter city. "The steamers," they add, "afford an excellent opportunity for tired rubber men to slip off easily and come up to St. John. We have a climate that is just perfect in July, August and September." Mr. Estey, of this firm, is a director in the Exposition, and will be glad to afford rubber manufacturers all the assistance possible in making exhibits. The firm would look after the exhibits, if necessary. Estey, Allwood & Co. have been in the business for twenty years and are agents in their country for the Revere Rubber Co., in addition to which they have had large dealings with most of the other leading companies in the United States. By the way, the INDIA RUBBER WORLD must plead guilty to an oversight, by means of which it referred in the May issue to another establishment in St. John as the "only exclusive rubber store in the Lower Provinces."

New Substitute for Hard Rubber.

AMONG the substances lately invented which it is claimed take the place of hard rubber, are two now manufactured in New York City—Fibrone and Plasticon. Both are carefully guarded as to the secret of their composition and the processes of menufacture. Fibrone is a non-conductor, waterproof, and can be sawed, drilled, turned in a lathe, tapped and filed. It is durable, will not contract or expand, and can be made in imitation of all colors, or such combinations as marble, stone or metal. It is non-elastic, and can be broken with a hammer or a violent fall on the floor. At present its use is chiefly in covers, thumb screws, push buttons. In its character it is similar to celluloid, but is not so inflammable, burning slowly with an odor similar to rubber. Plasticon is heavier, with more of a stony nature. Its use is not so varied as fibrone. These materials are very cheap, fibrone elegantly chased, for door knobs as an illustration, costs little if any more than wood. It has its field, like celluloid, and will probably have much commercial success, principally on account of its wide usefulness and moderate cost,

ONE of the earliest references to caoutchouc as a substance capable of practical use was made by Dr. Priestley, in the preface of his work on "Perspective," published in 1770. He mentions it as a substance which had just been brought to his notice, as admirably suited for rubbing out pencil marks, and as being then sold at the rate of three shillings sterling for a cubical bit of about half an inch.



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J. FRANCIS HAYWARD, No. 160 Congress Street, Boston, Mass.
J. M. PLUMMER & CO., No. 4 Arch Street, Boston, Mass.

THERE is considerable dissatisfaction among the stockholders of the Brookhaven Rubber Shoe Co. at the results of the past two years. About two years ago the company was reorganized, the creditors taking stock in liquidation of their claims, and some fresh money was put in. This has not turned out well, the officers claiming that they have been making a first-class shoe for too little money. The parties in control concluded it was best to close the factory, but a leading officer says it is the intention of the company to start the mill in September, and make two grades of shoes, a first, called the "Brookhaven," and a third, styled the "World."

THE Hodgman Rubber Co. are erecting a handsome factory at West Mt. Vernon, N. Y., to take the place of one recently destroyed by fire. The size of the building will be 165x30, and it will have three stories, the basement being ten feet and the other stories ten, nine and eight feet high respectively. At the rear will be two mammoth staircases reaching outside to the top story. Toilets and lockers are located in the vestibule. There will be three boilers set at the south end of the factory. Wire lathing will be used, and the plastering will be of asbestos, this with a new sprinkling device will, it is believed, render the building fire-proof. It will be heated by steam. It will have also a steam elevator. The building will be one-story higher and thirty-five feet longer than the original building, and give employment to 300 men, almost double its former capacity.

Letters to the Editor.

EDITOR INDIA RUBBER WORLD: Please inform me why it is that the heels come off of rubber boots, and is there any cement made that can be used for repairing them? I use a cement on soling that holds very well, but it does not seem to have much effect on the heel. Respectfully,

C. F. B.

EDITOR INDIA RUBBER WORLD: I am a cutter in a rubber shoe factory, and have worked on soles most of my life. I have had pretty good success and always had steady work. I am kind of troubled about the new-fangled sole-cutting machine that there is so much talk about. Do you think it will be a success, and if so, isn't it going to throw most of us fellows out of work? It seems to me things are well enough as they are. We do our work as well as we know how, and that is pretty well when we get to be skillful.

M. O. R.

[From what we have seen of the Wellman Sole-cutting Machine, which the above letter evidently refers to, we believe it to be a success. There has, of course, been much work necessary to develop it in its every detail, and a great deal of thought and skill has been brought to bear on making it as simple as possible before it has been put upon the market. We do not believe that the cutters in the various shoe factories will find themselves inconvenienced particularly by this machine. As a rule, the introduction of labor-saving machinery means an opening up of new avenues of usefulness for the help. If "M. O. R." is a capable man, and one who has faithfully served the company for whom he works, there is no doubt but what they will have some place for him equally as good, even if the machine cuts soles better and faster than he does. The question he asks is a question that has been asked by laboring men ever since labor-saving inventions were begun and if he will look back a little over the history of the growth of various manufactures, he will see that oftentimes the workmen have done all they could to antagonize any "new-fangled" machine. In this they are, however, in every case injuring themselves, and in no way retarding the advance of the business. We would advise "M. O. R." to look carefully into the Wellman machine, to understand it as well as the inventor himself understands it, and to be able to run one so perfectly that he will get the first job on it, and so keep not only abreast, but ahead of the times.—EDITOR.]

EDITOR INDIA RUBBER WORLD: It occurred to me that it might be of advantage, not only to the concern I travel for, but to the general rubber trade, if I write you a letter and request its publication. Just now is the time of the year when the travelling man is asked the familiar question, "What dating can you give me?" Now, when I first went on the road, I was willing to give any sort of dating that would insure an order, and would take my chances of satisfying the house that it was the best I could do. But as experience has come with years, it impresses me more and more that this system of dating bills ahead is unbusiness-like and is detrimental to the best interests of any trade. In the rubber business to-day, especially the line that I carry, the buyers are continually harping on having their bills dated ahead. There are certain of the younger travelling men who not only accede to their request, but to get an order will suggest it. Those of us who have decided absolutely that bills shall not be dated ahead are troubled not only by the importunities of the buyers, but by their absurd request that they

Frank E Hall
United States Agent
Consolidated Fastener Co.
Sole Agent for Fasteners for Rubber Garments, Leather Garments, Leather Collar Liners, Oil Clothing &c
67 Chauncy St
Boston, July 7, 1890.

Mr. H. C. Pearson, Editor,

Dear Sir:

It gives me great pleasure to inform you that I have received a great many inquiries from my advertisement in the "India Rubber World", and in every case have received orders from the parties making them.

Although I know we have the best substitute for button and buttonhole in the world, yet I must give you great credit for the advantage the advertisement in your paper has given it, in bringing it before the public. Your journal must be pretty thoroughly read, to have so many people calling for it, directly after the first insertion.

Yours truly,

Frank E Hall

should have six or seven per cent. discount for ten-day payments. Just what can be done in this matter I don't know, but it seems to me if the subject were agitated and all the more influential houses frowned this custom down, and it was confined only to the houses that are of no particular account, it would, as a business custom, in time die out, to the great advantage of our trade.

TRAVELLER.

THE total exportation of rubber from the two Amazon ports, Para and Manaos, amounts approximately to 15,000 tons annually, having a value in round numbers of $13,000,000, which alone would yield a revenue of $2,990,000.

The Rubber Market.

THE market for crude rubber, which up to the first of the month had been very active, has since been dull, although prices have remained very firm. The chief topics among brokers and manufacturers are the reported scarcity of stocks, the large sales reported several weeks ago, and the demand, present and future, all of which have an important bearing on the future of prices. The reported sale of 1,000,000 pounds of Para since our last issue is, in many quarters, believed to have existed only in imagination. Among conservative brokers, it is affirmed, and said to have been taken by the boot and shoe manufacturers, who were, as it is claimed, fearful that prices would decline at a time when they were ready to place their products on the market. The brokers claiming to have made the sale, say the amount was 1,200,000 pounds, but beyond the intimation that the deliveries were in large part to boot and shoe men, and that the price was 90 cents, do not care to detail the transaction. The sale at the time was said to be for a New England account, but careful inquiry does not disclose the secret of its disposition in that section.

The position of the market viewed from the standpoint of future arrivals is unique. The steamer *Brazil*, which sailed from Para July 1st, has on board 45 tons of fine rubber and 50 of coarse. She is now due in New York. The steamer *Augustine*, due here July 19th, has 70 tons fine and 50 of coarse. All of the fine is sold. There is one steamer *en route* to England with 75 tons of all kinds. This is claimed to comprise all the Para rubber there is on passage. Cables to private parties from Para last week report the stocks there as very short. The season has been unusually wet, and it is claimed that the trees have been overtapped. Stocks for sale in New York are claimed to be very light, holders withdrawing their offerings with great unanimity. It is claimed that on last Friday and Saturday only 35 tons could have been picked up by an anxious purchaser.

The London market is very firm. London cables in the latter part of the week stated that there were large buyers of fine Para for September delivery at 45 pence. Fifteen tons, for November delivery, according to another cable, a few hours preceding, were sold at 44 pence. A cable from Para was received which stated that the crop would not come forward as early as usual owing to the floods. This was a factor that made manufacturers and others "short" on early contracts unusually solicitous.

Bullish brokers claim that the situation here and abroad is approaching a crisis. The bears, however, claim that the market is "toppy," and it would be unreasonable to place it higher. In its position, the market would appear to be very subservient to manipulation and bad news. There is an impression in some quarters that there are good-sized stocks that would come on the market, if the proper opportunity in handsome profits, backed by an active market, presented itself.

Supplies of Centrals are very light. Large quantities connot be picked up. For a long time the falling off in imports has been noticeable, which has been ascribed to a general destruction of the trees. This has been corroborated by several parties who have lately visited the Guatemala district. Africans are strong; supplies are very fair, coming from Liverpool quite freely. There is, all in all, a notable absence of low grades in the New York market.

The demand for manufactured rubber in the various ramifications of trade is very good, and, with the high price of the gum, there is a conviction that the advance in the different sorts of goods are not sufficient. The mechanical rubber goods manufacturers seem to have no difficulty in maintaining the advance in prices agreed upon June 2, and now it is proposed to call a second meeting to be held in the latter part of the month, to agree upon a further advance. This is the dull season, and the fact that manufactured goods sell so readily gives the trade an assurance of stability in the advance already made, and a belief that a further appreciation is warranted, in view of the continued strength in fine Para.

In fire hose there is a good business. Some large shipments have been made to different sections; and there have been fair exports. Some attempts have been made to get an unanimity among dealers as to guarantees, but not much progress has been made. Garden hose has had an indifferent season. The preceding summer is remembered as a very rainy one, and stocks near the consumer became large, the effects of which reacted on the manufacturers in this season. Belting has been in good request, and some very large sales are rumored to have been made. Boots and shoes are dull. In addition to this being the dull season, holders are not anxious to make sales on account of the high price of rubber, and the buyers are not confident of obtaining an advance from the consumer. The two mild winters have shaken confidence in the trade. Tennis shoes have found a new field. Country people find that they are peculiarly adapted to rough roads, and they are going through bucolic districts like an epidemic. Boot and shoe manufacturers are fairly busy at the mills. They are talking of holding a meeting in September to advance prices.

Asbestos, has lately advanced. The price of good material is now 50 to 75 per cent. higher than it was some months ago. A good business is being done in whiting, both for rubber and general use.

The statistical position of the market for Para rubber is illustrated in the following statement for the dates named:

Stock of Para here May 31,	about	985,000 pounds.
Receipts of Para here during June.	about	737,000 pounds.
Deliveries of Para during June	about	1,022,000 pounds.
Stock here June 30, 1890,	about	700,000 pounds.
Stock here June 30, 1889,	about	1,325,000 pounds.
Stock here June 30, 1888,	about	2,360,000 pounds.

A comparison of the prices of Para rubber during the month of June, 1890, and for the same month in the two years preceding, is shown in this table:

	1890.		1889.		1888.	
	Fine.	Coarse.	Fine.	Coarse.	Fine.	Coarse.
First	91	67	66½	42	70	47
Highest	92	68	66½	42	71½	48
Lowest	91	66	65	40	69½	47
Last	91	68	64	40	70½	47

The latest quotations in the New York market are:

Para, fine	91-92	Loando, Niggers	65
Para, coarse	66-67	Sierra Leone	54-56
Caucho (Peruvian) strip	60	Benguela	59-60
Caucho (Peruvian) ball	65	Congo Ball	53-55
Mangabeaira, sheet	52-54	Small Ball	50-52
Esmeralda, sausage	65	Soft Ball	43
Esmeralda, strip	60	Flake, Lump and Ord	40-41
Guayaquil, strip	45-55	Mozambique, spindles	
Panama, strip	58	Mozambique, red ball	54
Virgin Scrap	70-73	Mozambique, white ball	50
Carthagena, strip	40	Madagascar, pinky	73-74
Nicaragua, scrap	62-63	Madagascar, black	53-54
Nicaragua, sheet	60-61	Borneo	45-57
Mexican, scrap	60-61	Gutta percha, fine grade	135-150
Mexican, sheet	58	Gutta percha, medium	70-80
Guatemala, sheet	53-56	Gutta percha, hard white	75
Thimbles	51	Gutta percha, lower sorts	30
Tongues	53-54		

MR. N. C. WOOSTER, for several years past connected with the New Jersey Car Spring and Rubber Co., is back again in his familiar walks with the Gutta Percha and Rubber Manufacturing Co. It was seven years ago that Mr. Wooster left the Gutta Percha Co. to take his engagement with the New Jersey people, and now he comes back again to his old associations.

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MANUFACTURERS OF

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ANDOVER

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GEO. E. HUTCHINS, Manager.

HOPE RUBBER CO., - - - - - - - No. 83 Westminster St., Providence, R. I.
JOHN J. GILMARTIN, Manager.

WORCESTER RUBBER CO., - No. 324 Main Street, Worcester, Mass.
AARON S. TAFT, Manager.

NEW HAMPSHIRE RUBBER CO., No. 949 Elm Street, Manchester, N. H.
A. SHEDLEY, JR., Manager.

LAWRENCE RUBBER CO., - No. 455 Essex Street, Lawrence, Mass.
ISAAC CROCKER, Manager.

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